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Water Supply Outlook For Washington



SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE

Cooperating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

AS OF
MAY 1, 1980

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: THE SNOTEL PROJECT CENTRAL COMPUTER FACILITIES IN PORTLAND, OREGON. THE TERMINAL, PRINTER, COMPUTER AND TAPE DRIVES HAVE NOT COMPLETELY REPLACED THE SNOW SAMPLING TUBES SEEN IN THE FOREGROUND.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4420 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U. S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.



WATER SUPPLY OUTLOOK

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WATER SUPPLY OUTLOOK FOR WASHINGTON

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

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WASHINGTON, D C

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SOIL CONSERVATION SERVICE
SPOKANE, WASHINGTON

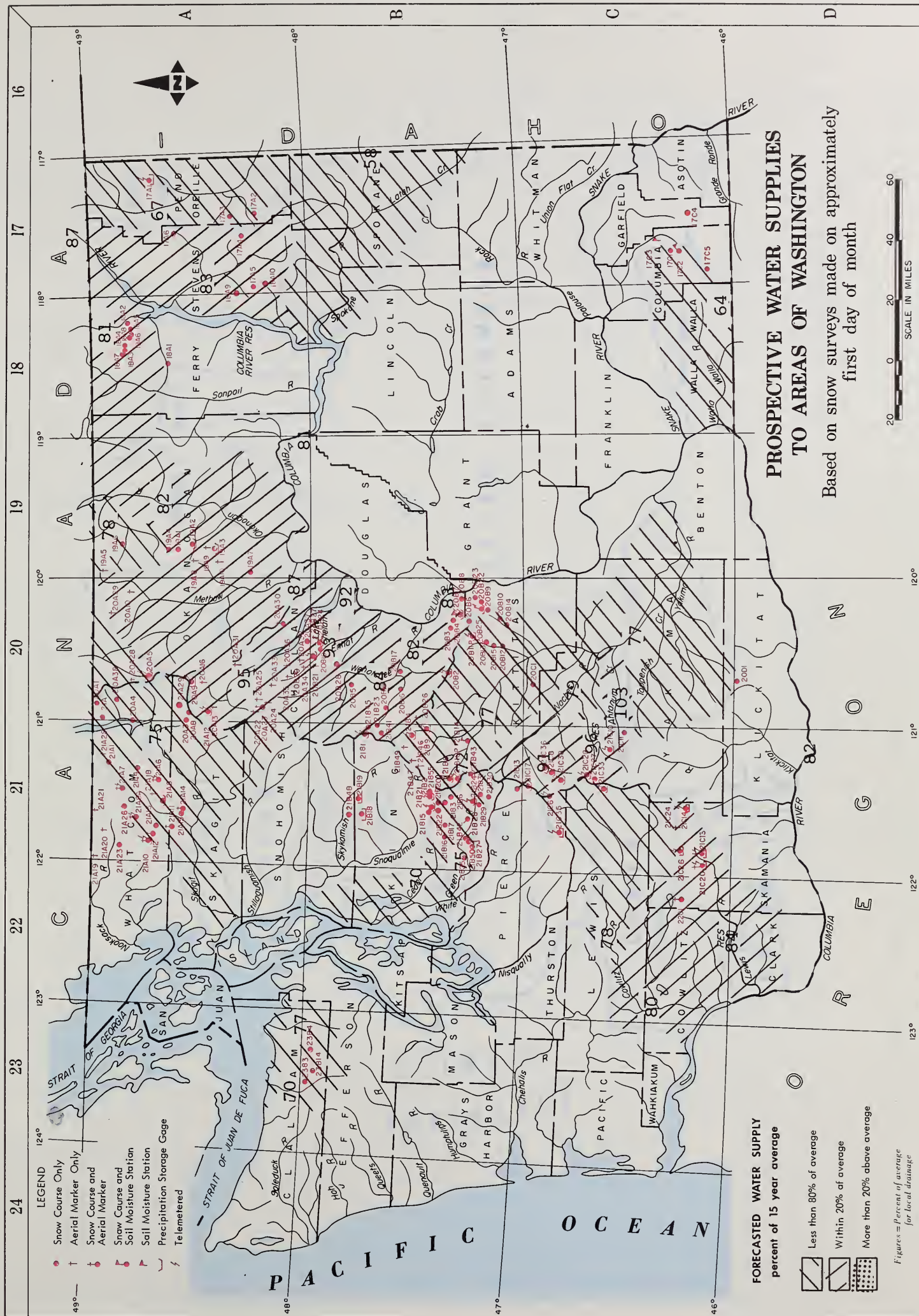
In Cooperation with

WILBUR G. HALLAUER
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DEPARTMENT OF ECOLOGY
STATE OF WASHINGTON
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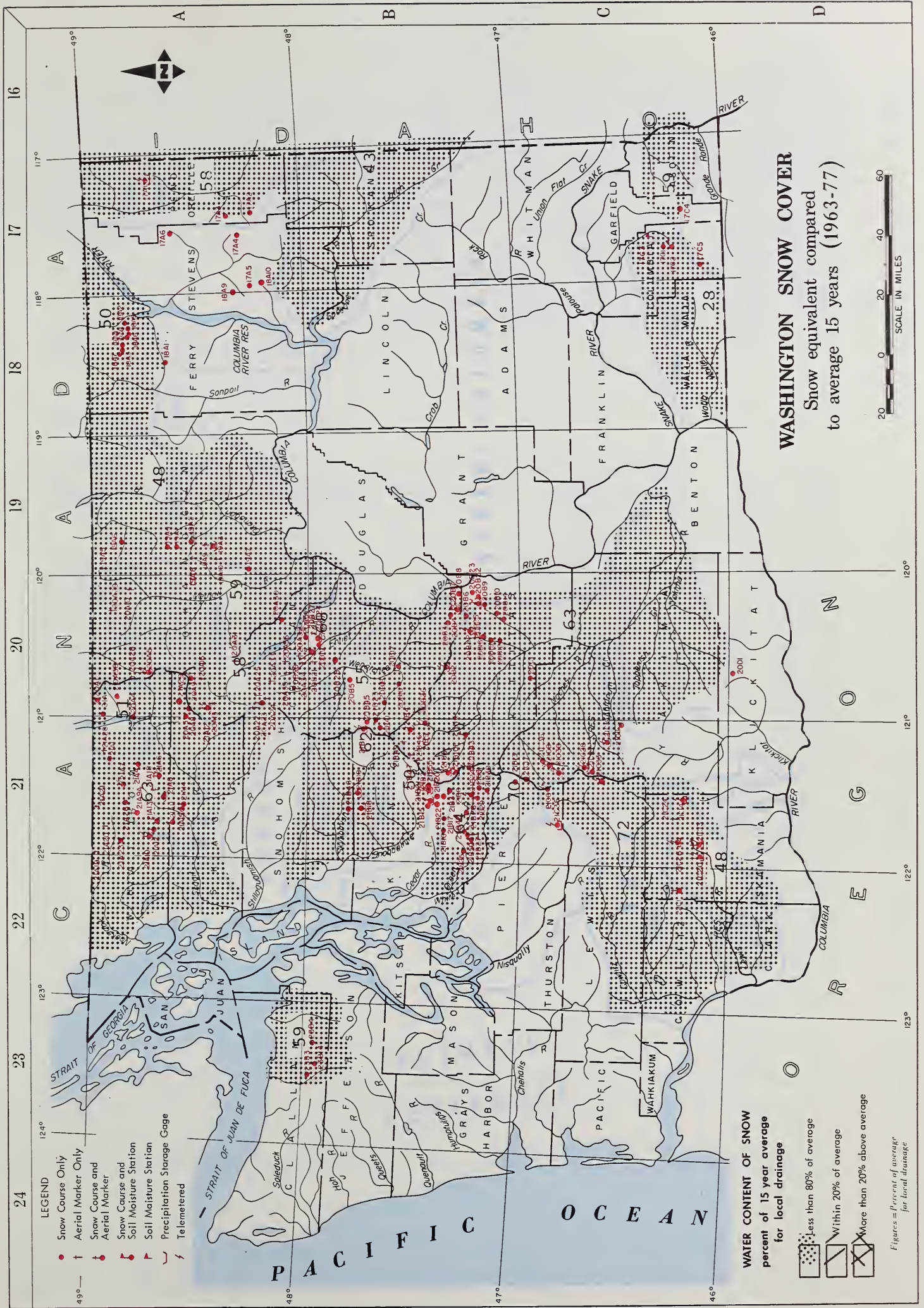
ROBERT T. DAVIS, Snow Survey Supervisor
and
NORINE P. KENT, Statistical Assistant

SOIL CONSERVATION SERVICE
360 U.S. COURTHOUSE
SPOKANE, WASHINGTON 99201



INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE										LOWER COLUMBIA DRAINAGE										PUGET SOUND DRAINAGE										OLYMPIC PENINSULA																																																																																									
NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.																																																																																										
Pend Oreille River																														Lewis River																														Skagit River																														Dungeness River																													
Boyer Mountain	17A2	7	31N	43E	5250	Colocum Creek Upper	20822	11	20N	20E	5300	Lone Pine Shelter	21C26SP	8	9N	7E	3800	Beaver Creek Trail	21A4	35	39N	12E	2200	Deer Park	2384	1	28N	5W	5200																																																																																										
Bunchgrass Meadow	17A1SP	24	37N	44E	5000	Colocum Creek Lower	20823	1	20N	20E	4300	Plains at Abraham	22C13SP	35	9N	5E	4400	Beaver Pass	21A1				3680	Cox Valley	23814	31	29N	6W	4500																																																																																										
Winchester Creek	17A3	30	33N	43E	2970	Squillchuck Creek	2083	12	21N	19E	4400	Spencer Meadow	21C13SP	14	7N	8E	4250	Brown Top	21A28a				5900																																																																																																
Kettle River																														Cowlitz River																														Nooksack River																														Elwha River																													
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Butte Creek	18A3	28	39N	35E	4070	Scout-A-Vista	2084	18	21N	20E	3400							Freezeout Meadows (New)	20A38				5000																																																																																																
Cabin Creek	18A8	5	38N	36E	3170	Jump-Off	2088	34	21N	20E	4450	Cayuse Pass	21C6	15	16N	10E	5300	Granite Creek	21A29				3600																																																																																																
Goat Creek	18A4	26	39N	35E	3595	Stemilt Slide	2086	30	21N	20E	5000	Pigtail Peak	21C33SP	11	13N	11E	5900	Freezeout Creek	20A1				3500																																																																																																
Snow Caps Creek	18A5	3	38N	36E	2150	Upper Wheeler	2087SP	30	21N	20E	4400	Potato Hill	21C14SP	36	10N	10E	4500	Meadows Cabins	20A8				3500																																																																																																
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Muckamuck	19A9a	20	36N	24E	6750	Green Lake	21C10SP	3	12N	13E	6000	Tinkham Creek	21B20P	1	21N	10E	3400	S. F. Thunder Creek	21A14A	20	36N	9E	2200																																																																																																
Mutton Creek No. 1	19A1	30	37N	24E	5700	Grouse Camp	20B11SP	29	21N	19E	5385							Sulphur Creek	21A13	22	37N	8E	1600																																																																																																
Mutton Creek No. 2	19A4	30	37N	24E	6000	High Creek	20B12	34	20N	19E	2930	Lake Elizabeth	21B19P	33	26N	10E	2900	Three Mile Creek	21A15	18	36N	9E	1600																																																																																																
Puysayten	20A28a	32	40N	18E	4300	Jae Lake	21B46a	25	23N	12E	4624							Watson Lakes	21A8P	25	37N	9E	4500																																																																																																
Rusty Creek	19A3P	18	35N	24E	4000	Lake Cle Elum	21B14M	12	23N	14E	2200																																																																																																												
Salmon Meadows	19A2SP	33	37N	24E	4500	Lemah Creek	21B47a	7	23N	13E	3327																																																																																																												
Starvation Mtn.	19A10a	15	35N	23E	6750	Manastash	20C1	24	17N	16E	3935																																																																																																												
Touts Coulee	19A6	30	39N	25E	2845	Morse Lake	20B13	4	16N	11E	5400																																																																																																												
Methow River																														White River																														Nooksack River																														Elwha River																													
Billy Goat Pass	20A10a	10	38N	20E	6400	Nanum	20B14	20	19N	20E	3360	Paradise Park (New)	21C35SP	13	15N	8E	5500	Bald Mountain	21A18a	7	40N	7E	4400																																																																																																
Darlar Watch	20A29p	8	39N	20E	7000	Trail Creek	20B17SP	6	16N	11E	5400																																																																																																												
Harts Pass	20A5SP	7	37N	18E	6500	Tunnel Avenue	20B18P	16	23N	11E	2450	Corral Pass	21B13SP	30	18N	11E	6000	Canyon	21A20A	20	40N	8E	5100																																																																																																
Horseshoe Basin	19A5a	15	40N	23E	7000	Van Epps Pass	20B26a	13	23N	15E	5925																																																																																																												
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Chelan Lake Basin																														Green River																														Dungeness River																														Elwha River																													
Cloudy Pass	20A22a	12*	31N	15E	6500	Wapitus Lake	21B49a	12	23N	13E	3024																																																																																																												
Greenwood Flat	20A25a	3	31N	16E	3540	White Pass (East Side)	21C28SP	2	15N	11E	4500																																																																																																												
Little Meadows	20A24a	8	31N	16E	3275																																																																																																																		
Lyman Lake	20A23SP	18	31N	16E	5900																																																																																																																		
Park Creek Flat	20A13a	19	34N	16E	2220																																																																																																																		
Park Creek Ridge	20A12SP	18	34N	16E	4600																																																																																																																		
Petersons	20A16a	3	34N	17E	3730																																																																																																																		
Rainy Pass	20A9SP	21	35N	17E	4780																																																																																																																		
Safety Harbor	20A30a	32	31N	20E	6300																																																																																																																		
War Creek Pass	20A31a	34	33N	18E	6500																																																																																																																		
Entiat River																														Cedar River																														Dungeness River																														Elwha River																													
Blue Creek G. S.	20B28a	19	28N	18E	5425																																																																																																																		
Brief	20B19	34	28N	19E	1600																																																																																																																		
Entiat Meadows	20A33a	28	31N	17E	4540																																																																																																																		
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Four Mile Ridge	20B27a	17	30N	18E	6510																																																																																																																		
Fox Camp	20A36a	17	30N	18E	6510																																																																																																																		
Pope Ridge	20B20	22	29N	18E	3540																																																																																																																		
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540																																																																																																																		
Pugh Ridge	20A32a	34	30N	18E	6725																																																																																																																		
Shady Pass	20A37	20	29N	17E	6200																																																																																																																		
Snow Brushy	20A35a	21	30N	17E	3910																																																																																																																		
Tommy Creek	20B21a	10	28N	18E	4900																																																																																																																		
Wenatchee River																														Snoqualmie River																														Dungeness River																														Elwha River																													
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Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240																																																																																																																		
Blowett Pass No. 2	20B2SP	35	25N	17E	4270																																																																																																																		
Chiwaukum G. S.	20B16	3	25N	17E	1810																																																																																																																		
Chiwaukum	20B5	33	27N	17E	1970																																																																																																																		
Chiwaukum	20B17	1	24N	17E	1127																																																																																																																		
Leavenworth R. S.	20B18	4	26N	16E	2140																																																																																																																		
Merritt	21B15P	14	26N	13E	4070																																																																																																																		
Stevens Pass	21B45	12	26N	19E	3700																																																																																																																		
Stevens Pass Sand Shed	20B25SP	10	20N	20E	5310																																																																																																																		
Trough #2																																																																																																																							



INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
UPPER COLUMBIA DRAINAGE											
Pend Oreille River											
Boyer Mountain	17A2	7	31N	43E	5250	Calockum Creek					
Bunchgrass Meadow	17A1SP	24	37N	44E	5000	Colockum Creek Upper	20822	11	20N	20E	5300
Winchester Creek	17A3	30	33N	43E	2970	Colockum Creek Lower	20823	1	20N	20E	4300
Kettle River											
Boulder Road	18A2	36	39N	36E	1450	Squillchuck Creek					
Butte Creek	18A3	28	39N	35E	4070	Beehive Springs	2083	12	21N	19E	4400
Cabin Creek	18A8	5	38N	36E	3170	Scout-A-Vista	2084	18	21N	20E	3400
Goat Creek	18A4	26	39N	35E	3595	Stemilt Creek					
Snow Caps Creek	18A5	3	38N	36E	2150	Jump-Off	2088	34	21N	20E	4450
Snow Caps Trail	18A6	5	38N	36E	2720	Stemilt Slide	2086	30	21N	20E	5000
Summit G. S.	18A7	20	39N	35E	4600	Upper Wheeler	2087SP	30	21N	20E	4400
Colville River											
Baird	17A6	19	36N	42E	3215	Yakima River					
Carlson	18A9	34	32N	38E	2885	Athnum R. S.	21C11	24	12N	14E	3100
Chewelah	17A4	11	32N	41E	4925	Big Boulder Creek	21B9SP	35	23N	14E	3200
Stranger Mountain	17A5	26	31N	38E	4990	Bumping Lake	21C36	13	16N	12E	3450
Tago	18A10	6	29N	38E	3370	Bumping Lake New	21C36	13	16N	12E	3400
Sanpoil River											
Sherman Creek Pass	18A1	19	36N	35E	5350	Bumping Ridge	21C38SP	9	15N	12E	4600
Okanogan River											
Clark	19A8a	2	36N	23E	7000	Colockum Pass	2089	25	20N	20E	5370
Muckamuck	19A9a	20	36N	24E	6750	Cooke Creek	20810	17	19N	20E	4123
Mutton Creek No. 1	19A1	30	37N	24E	5700	Fish Lake	21B4SP	28	24N	14E	3371
Mutton Creek No. 2	19A4	19	37N	24E	6000	Green Lake	21C10SP	3	12N	13E	6000
Paysayten	20A28a	32	40N	18E	4300	Grouse Camp	20812	34	20N	19E	5385
Rusty Creek	19A3P	18	35N	24E	4000	High Creek	20812	34	20N	19E	2930
Salmon Meadows	19A2SP	33	37N	24E	4500	Joe Lake	21B46a	22	23N	12E	4624
Savation Mtn.	19A10a	15	35N	23E	6750	Lake Cle Elum	21B14M	15	20N	14E	2200
Tauts Coulee	19A6	30	39N	25E	2845	Lemah Creek	21B47a	7	23N	13E	3327
Methow River											
Billy Goat Pass	20A10a	10	38N	20E	6400	Manastash	20C1	24	17N	16E	3935
Dollar Watch	20A29a	8	39N	20E	7000	Morse Lake	21C17SP	6	16N	11E	5400
Harris Pass	20A5SP	7	37N	18E	6500	Nanum	20813	4	20N	19E	3875
Horseshoe Basin	19A5a	15	40N	23E	7000	Trail Creek	20814	20	19N	20E	3360
Loup Loop	19A7	36	34N	23E	4650	Tunnel Avenue	21B8P	13	21N	11E	2450
Chelan Lake Basin											
Cloudy Pass	20A22a	12	31N	15E	6500	Van Epps Pass	20826a	16	23N	15E	5925
Greenwood Flat	20A25a	3	31N	16E	3540	Walters Flat	20815	22	20N	19E	3360
Little Meadows	20A24a	8	31N	16E	5275	Wopius Lake	21B49a	12	23N	13E	3024
Lyman Lake	20A23SP	18	31N	16E	5900	White Pass (East Side)	21C28SP	2	13N	11E	4500
Park Creek Flat	20A13a	19	34N	16E	2220	LOWER COLUMBIA DRAINAGE					
Park Creek Ridge	20A12SP	18	34N	16E	4600	Asotin Creek					
Petersons	20A16a	3	34N	17E	3730	Spruce Springs	17C4	9	8N	40E	5700
Rainy Pass	20A9SP	21	35N	17E	4780	Touchet River					
Safety Harbor	20A30a	32	31N	20E	6300	Couse	17C3m	2	9N	40E	3370
War Creek Pass	20A31a	34	33N	18E	6500	Homestead	17C1	11	9N	40E	4030
Entiat River											
Blue Creek G. S.	20B28a	19	28N	18E	5425	Martin Springs (Helmers Sw)	17C2M	23	9N	40E	4400
Brief	20B19	34	28N	19E	1600	Touchet Na. 2	17C5SP	6	7N	40E	5530
Entiat Meadows	20A33a	28	31N	17E	4540	Klickitat River					
Entiat River Trail	20A34a	2	29N	17E	3325	Satus Pass	20D1	21	6N	17E	4030
Four Mile Ridge	20B27a	15	28N	19E	6800	Snoqualmie River					
Fox Camp	20A36a	17	30N	18E	6510	Alpine Meadow	21B48	31	27N	9E	3500
Pope Ridge	20B20	22	29N	18E	3540	Olallie Meadows	21B2P	19	22N	11E	3625
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540	South Fork Tolt	21B18P	26	26N	9E	1900
Pugh Ridge	20A32a	34	30N	18E	6725	Olallie Meadows East	21B55SP	20	22N	11E	8700
Shady Pass	20A37	20	29N	19E	6200	Skykomish River					
Snow Brushy	20A35a	21	30N	17E	3910	Lake Elizabeth	21B19P	33	26N	10E	2900
Tommy Creek	20B21a	10	28N	18E	4900	LEGEND					
Wenatchee River											
Berne-Mill Creek	21B23	7	26N	15E	3170	Snow Course Only					
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240	21A7					
Blewett Pass No. 2	20B2SP	35	22N	17E	4270	21A7a					
Chiwaukum G. S.	20B16	4	25N	17E	1810	21A7b					
Lake Wenatchee	20B5	33	27N	17E	1970	21A7M					
Leavenworth R. S.	20B17	1	24N	17E	1127	21A7N					
Merritt	20B18	4	26N	16E	2140	21A7P					
Stevens Pass	21B1SP	14	26N	13E	4070	21A7SP					
Stevens Pass Sand Shed	21B45	12	26N	19E	3700	21A7SP					
Trough #2	20B25SP	10	20N	20E	5310	21A7SP					

WATER SUPPLY OUTLOOK

State of Washington

May 1, 1980

** There has been a dramatic reduction in the amount of snow in the hills as **
** of May 1. The warm temperatures that have been experienced over the **
** state and most of its tributary areas have really melted the snowpacks. **
** On April 1, we had a good snowpack, but it was quite dense compared to **
** normal; but now, as of May 1, the low elevation snow is gone; the middle **
** elevation snow is minimal; and the high elevation snow is very subnormal. **
** Rainfall was pretty good over the state with above normal precipitation **
** measured in the northeast and along the east side of the Cascades. On **
** the west side, it is near normal in the south, but quite a bit below **
** average in the north. Canadian precipitation in the Columbia above **
** Castlegar area was also below normal. Generally speaking, runoff was **
** well above normal. Only in the low elevation drainages or areas of light **
** snowpack was runoff subnormal. **
**

SNOW COVER

There are considerably fewer snow courses measured as of May 1, but those that are measured usually have a substantial snowpack. This year, the snowpack is so poor that many of the snow courses were reported to have no snow as of May 1. These, of course, are not used in the average comparisons, but the ones that still have measureable amounts of snow were reported to be well below average. The Pend Oreille Drainage, measured by thirteen snow courses, has a snowpack that is only 58 percent of average - down 25 percent from last month. The Kettle Watershed, measured by ten snow courses, now has a snowpack that is 50 percent of average - down 42 percent. The Spokane Drainage, measured by six courses, has a May 1 snowpack that is 43 percent of average - 20 percent down from last month. The Okanogan, measured by twenty-eight snow courses, both in British Columbia and Washington, has a snowpack that is 48 percent of normal. Only one snow course in the Chelan Drainage was measured this month and that indicates the snowpack to be 58 percent of normal. The Yakima, measured by fifteen snow courses, has a snowpack that is 10 percent less than last year; 36 percent more than was measured in 1978 at this time; but still 37 percent below normal. Last month's snowpack in the Yakima Drainage was 3 percent above average. Along the Lower Columbia, the higher elevation snow courses seem to be the better while anything at a lower elevation can be considered gone. One snow course in Mill Creek has a snowpack that is only 28 percent of average, but another one in the Asotin Watershed at a high elevation, has a snowpack that is 59 percent of average. Four snow courses in the Lewis River Drainage were reactivated as of April 10, and again measured on April 30. The May 1 snowpack on this drainage is only 48 percent of average. We feel that the results of Mt. St. Helens' rumblings and spewing of ash is a deciding factor in this low snowpack remainder. The Cowlitz River, measured by only two snow courses, has a snowpack that is 72 percent of average. It is interesting to note that the Plains of Abraham Snow Course on the northeast slope of Mt. St. Helens lost 76 inches of snow depth from April 10 to April 30; and 32 inches of water during the same period. The normal situation at this location is a gain of 6.3 inches of water. In the Puget Sound Drainage, only the crest stations were reported to have any snow and these range from 50 percent of average to a high of 70 percent. On the Olympic Peninsula, the snowpack on the Dungeness River is 41 percent below average; but on the Elwha, 64 percent below normal - these, each measured by one snow course only.

RESERVOIRS

We have had a marked improvement in the reservoir situation from that reported last month. The high flows of April were caught by the reservoirs and resulted in this marked improvement. The five irrigation reservoirs in the Yakima Basin, including Lake Cle Elum which is still not operational, have 76 percent of capacity amounts of water in storage as of May 1. This is 8 percent greater than average for these reservoirs. The two small irrigation reservoirs in the Okanogan Irrigation District have 50-90 percent of capacity water in storage. Conconully Reservoir has 16 percent below the average amount of water in storage and Conconully Lake, formerly called Salmon Lake, has 12 percent above average water in storage as of May 1. The one power reservoir that has really improved dramatically is Lake Roosevelt. This reservoir now has 183 percent greater than average water in storage as of May 1, although it is still only 47 percent full.

PRECIPITATION

As stated above, reasonable amounts of rainfall fell over the watersheds that affect our Washington water supply. The Columbia above Castlegar had 87 percent of normal precipitation; the Pend Oreille-Spokane Drainage Division, 9 percent above normal; but northeastern Washington, the best, has 75 percent better than average rainfall. In southeastern Washington, precipitation was only 58 percent of normal; but along the eastern slopes of the Cascades, precipitation was 22 percent above normal in the north and 11 percent in the central and southern areas. On the northwest slopes, rainfall was 27 percent less than average; but on the southwest slopes, only 4 percent subnormal.

STREAMFLOW

As a result of the normal or above precipitation and the well above normal temperatures experienced during the month, runoff was very good over most of the state. In those areas where there was little snow to melt off or the snow had already melted off, runoff was subnormal. The Pend Oreille had flows 3 percent less than normal; the Spokane, 16 percent subnormal; the Palouse River, as measured at Hooper, was 53 percent below average; and the Walla Walla River, 14 percent below. Other streams ranged up to 79 percent above average - this occurring on the Columbia River as measured at Birchbank. Forecasts have been markedly reduced from those issued last month, in part due to the high flows of April; and in part, the lack of snowpacks in the higher elevations. Reductions as great as 12 to 15 percent can be expected over most of the state. This, we feel, could cause some water shortages late in the irrigation water use season. The deciding factor in this will be the summer and early fall precipitation. If this occurs in normal or better manner, the water shortages should be minimal; but if we get another dry summer with very little rainfall in late summer, then the shortages will be more pronounced. Numerical forecasts can be found on the following pages.

STREAMFLOW FORECASTS - MAY 1980

The following summarized runoff forecasts are based principally on mountain snowcover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. These forecasts are made as a product of the cooperative efforts of the Soil Conservation Service and the National Weather Service. Streamflow figures for 1979 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1980	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-Yr. Avg.	Fore- cast period	1979	1978	1977	15-Yr Average 63-77
<u>COLUMBIA BASIN</u>							
<u>COLUMBIA RIVER SYSTEM</u>							
Columbia River	37000	87	May-Sept	32506	40601	29012	42769
at Birchbank <u>1/</u>	29250	87	May-July	25203	30622	21262	33621
	20400	87	May-June	17683	20674	15476	23461
Columbia River	50000	81	May-Sept	47880	58882	36594	61503
at Grand Coulee <u>1/</u>	40900	81	May-July	39207	46573	27557	50526
	30590	81	May-June	30248	33599	21162	37764
Columbia River	55600	83	May-Sept	50210	64144	38555	67050
bl. Rock Island Dam <u>1/</u>	46130	83	May-July	41612	51416	29394	55578
	34530	83	May-June	32364	37495	22704	41605
Columbia River	72500	82	May-Sept	66834	85792	46862	90981
at The Dalles, OR <u>1/</u>	60800	80	May-July	55749	69552	35710	76007
	47000	80	May-June	45007	52090	28294	58725
<u>PEND OREILLE RIVER SYSTEM</u>							
Pend Oreille River	9080	67	May-Sept	10206			13595
bl. Box Canyon	8230	67	May-July	9662			12286
	6850	67	May-June	8783			10230
<u>KETTLE RIVER SYSTEM</u>							
Kettle River	1310	81	May-Sept	1140	1682	973	1616
nr. Laurier	1260	83	May-July	1086	1504	933	1524
	1120	82	May-June	1012	1313	865	1358
Colville River	70	83	May-Sept		84	17	84
at Kettle Falls	60	82	May-July		71	13	73
	55	85	May-June		63	12	65

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Basin, Stream and Station	Forecast Runoff 1980	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-Yr. Avg.	Fore- cast period	1979	1978	1977	15-Yr. Average 63-77
<u>SPOKANE RIVER SYSTEM</u>							
Spokane River	1200	58	May-Sept	1924			2102
at Post Falls, ID <u>2/</u>	1080	55	May-July	1872			1966
	1010	55	May-June	1793			1833
<u>OKANOGAN RIVER SYSTEM</u>							
Similkameen River	1120	78	May-Sept	811	1377	558	1440
nr. Nighthawk	1040	78	May-July	751	1236	517	1339
	890	80	May-June	667	1041	640	1114
Okanogan River	1300	82	May-Sept	844	1513	617	1595
nr. Tonasket	1180	82	May-July	763	1323	553	1441
	990	84	May-June	671	1109	492	1180
<u>METHOW RIVER SYSTEM</u>							
Methow River	820	87	May-Sept		1045	255	938
nr. Pateros	760	88	May-July		930	221	864
	630	88	May-June		748	192	718
<u>CHELAN RIVER SYSTEM</u>							
Chelan River	1050	92	May-Sept	675	1179	510	1139
at Chelan <u>3/</u>	900	92	May-July	584	1008	392	982
	680	92	May-June	475	750	314	736
Stehekin River	785	95	May-Sept	511	795	422	823
at Stehekin	650	95	May-July	422	656	310	683
	480	97	May-June	332	469	239	497
Entiat	210	93	May-Sept	124	264	80	227
nr. Ardenvoir	190	93	May-July	110	237	65	204
	150	94	May-June	94	185	54	159
<u>WENATCHEE RIVER SYSTEM</u>							
Wenatchee River	980	84	May-Sept		1115	506	1172
at Plain	880	85	May-July		975	414	1032
	670	86	May-June		749	352	778
Wenatchee River	1300	82	May-Sept	1058	1490	673	1595
at Peshastin	1160	82	May-July	963	1311	564	1414
	890	83	May-June	823	1010	487	1077
Stemilt Basin	120	87	May-Sept				138*
nr. Wenatchee							
Icicle Creek	310	83	May-Sept				371
nr. Leavenworth	285	83	May-July				342
	230	83	May-June				279

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

Basin, Stream and Station	Forecast Runoff 1980	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-Yr. Avg.	Fore cast period	1979	1978	1977	15-Yr. Average 63-77
YAKIMA RIVER SYSTEM							
Yakima River	88	72	May-Sept	99	88	50	122
nr. Martin <u>4/</u>	78	71	May-July	89	75	39	110
	65	75	May-June	77	67	39	91
Yakima River	630	77	May-Sept	574	644	352	827
at Cle Elum <u>5/</u>	550	75	May-July	543	532	276	735
	450	75	May-June	459	451	238	603
Yakima River	1400	77	May-Sept	1115	1504	596	1815
nr. Parker <u>6/</u>	1280	80	May-July	1014	1218	451	1601
	1070	80	May-June	906	1014	405	1340
Kachess River	80	76	May-Sept	76	73	40	105
nr. Easton <u>7/</u>	75	76	May-July	70	67	33	98
	65	79	May-June	63	60	32	82
Cle Elum River	350	83	May-Sept	295	346	186	423
nr. Roslyn <u>8/</u>	320	84	May-July	273	301	150	379
	250	83	May-June	239	247	128	302
Bumping River	120	91	May-Sept	90	100	49	132
nr. Nile <u>9/</u>	110	92	May-July	83	89	41	119
	80	86	May-June	73	74	37	93
American River	105	92	May-Sept		93	39	114
nr. Nile	95	92	May-July		81	33	103
	75	92	May-June		65	29	82
Tieton River	215	96	May-Sept	159	191	109	223
at Tieton Dam <u>10/</u>	170	93	May-July	128	152	73	183
	130	94	May-June	100	112	57	139
Naches River	610	79	May-Sept	492	560	262	772
nr. Naches <u>11/</u>	550	80	May-July	446	495	202	684
	450	81	May-June	395	403	182	558
Ahtanum Creek	40	103	May-Sept		37	6	39
nr. Tampico <u>12/</u>	35	100	May-July		32	5	35
	30	103	May-June		26	4	29

- 4/ Observed flow corrected for storage in Lake Keechelus.
- 5/ Observed flow corrected for storage in Keechelus, Kachess, and Cle Elum Lakes and diversion by Kittitas Canal.
- 6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation, and Sunnyside Canals.
- 7/ Observed flow corrected for storage in Lake Kachess.
- 8/ Observed flow corrected for storage in Lake Cle Elum.
- 9/ Observed flow corrected for storage in Bumping Lake.
- 10/ Observed flow corrected for storage in Rimrock Lake.
- 11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals, and City of Yakima.
- 12/ Observed flow of North and South Forks (Combined).

Basin, Stream and Station	Forecast Runoff 1980	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-Yr. Avg.	Fore cast period	1979	1978	1977	15-Yr. Average 63-77
<u>LOWER COLUMBIA RIVER SYSTEM</u>							
Mill Creek	4.9	64	May-Sept		4.56	0.76	7.7
at Walla Walla	4.7	63	May-July		4.44	0.58	7.5
	4.6	63	May-June		4.36	0.54	7.3
Lewis River	810	84	May-Sept	683	798	749	960
at Ariel <u>13/</u>	660	84	May-July	548	504	551	790
	540	83	May-June	463	408	482	654
Cowlitz River	1340	78	May-Sept		1292	1165	1717
bl. Mayfield Dam	1125	78	May-July		1005	888	1445
	900	79	May-June		808	763	1144
Cowlitz River	1730	80	May-Sept	1474	1705	1598	2170
at Castle Rock <u>14/</u>	1360	75	May-July	1235	1308	1207	1804
	1085	76	May-June	1026	1054	1042	1432
<u>OLYMPIC PENINSULA</u>							
<u>DUNGENESS RIVER SYSTEM</u>							
Dungeness River	110	77	May-Sept		136	82	143
nr. Sequim	90	80	May-July		99	59	113
	65	82	May-June		67	45	79
<u>PUGET SOUND</u>							
<u>SKAGIT RIVER SYSTEM</u>							
Skagit River	1500	75	May-Aug	1352	1673	475	2017
at Newhalem <u>15/</u>	1625	75	May-Sept	1477	1885	560	2161
	1350	76	May-July	1188	1460	368	1776
	990	77	May-June	932	1055	261	1290
<u>ELWHA RIVER SYSTEM</u>							
Elwha River	335	70	May-Sept		395	298	480
nr. Port Angeles	265	70	May-July		288	223	381
<u>GREEN RIVER SYSTEM</u>							
Green River	175	75	May-Sept	148	144	140	233
bl. Howard Hanson Dam <u>16/</u>							
<u>CEDAR RIVER SYSTEM</u>							
Cedar River	65	70	Apr-Sept		59	55	93
nr. Cedar Falls							

13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.

14/ Observed flow corrected for storage in Mayfield Reservoir.

15/ Observed flow corrected for storage in Diablo, Ross, and Gorge Reservoirs.

16/ Observed flow corrected for storage in Howard Hanson Dam.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about May 1, 1980, as percent of the same date in 1979 and 1978 and average of record.

Tributary Basin	No. of Courses Average	1980 Snow Water Expressed as percent of		
		1979	1978	1963-77 Avg.

UPPER COLUMBIA BASIN

Pend Oreille	13	68	73	58
Kettle	10	71	45	50
Spokane	6	51	65	43
Okanogan	28	77	44	48
Methow	4	172	49	59
Chelan	1	94	59	58
Entiat	9	112	58	68
Wenatchee	6	68	91	55
Yakima	15	90	136	63

LOWER COLUMBIA BASIN

Asotin	1	55	91	59
Mill Creek	1	19	51	28
Lewis	4	-	72	48
Cowlitz	2	96	111	72

PUGET SOUND

White	3	88	90	70
Green	2	72	108	64
Snoqualmie	1	60	127	50
Skykomish	2	80	84	62
Skagit	10	76	79	51
Baker	7	97	89	63
Nooksack	1	88	115	58

OLYMPIC PENINSULA

Morse Creek	1	79	91	62
Elwha	1	63	77	36
Dungeness	1	65	117	59

RESERVOIR STORAGE - 1000 Acre Feet

BASIN OR STREAM	RESERVOIR	USABLE ^{1/} CAPACITY	1980	1979	Measured May 1 1978	Normal*
<u>COLUMBIA</u>						
Spokane	Coeur d'Alene Lake	225.1	264.5	260.5	202.4	238.4
Columbia	Franklin D. Roosevelt Lake	5232.0	2460.0	909.9	860.4	867.8
Columbia	Banks Lake	714.9	527.9	393.4	505.0	442.8
Okanogan	Conconully Reservoir	13.0	6.5	10.3	5.7	7.7
Okanogan	Conconully (Salmon) Lake	10.5	9.0	10.5	7.4	8.0
Chelan	Lake Chelan	676.1	214.4	163.4	242.2	219.0
<u>YAKIMA</u>						
Yakima	Keechelus Lake	157.8	131.5	117.0	150.4	113.8
Kachess	Kachess Lake	239.0	126.7	228.0	237.2	194.2
Cle Elum	Lake Cle Elum	436.9	378.0	180.9	373.5	295.9
Bumping	Bumping Lake	33.7	34.4	13.3	32.4	11.6
Tieton	Rimrock Lake	198.0	144.0	146.4	170.6	136.6
<u>PUGET SOUND</u>						
Skagit	Ross Reservoir	1404.1	644.0	731.6	793.0	711.5
Skagit	Diablo Reservoir	90.6	84.1	86.8	83.3	86.4
Skagit	Gorge Reservoir	9.8	7.5	8.0	7.8	8.1

^{1/} Based on Active Storage

* 15-yr. Average 1963-1977

SOIL MOISTURE - May, 1980

Drainage Basin and Station	Number	Elev.	Profile Depth	Inches Total Capacity	Soil Moisture Content Inches as of May 1		
					1980	1979	1978
<u>OKANOGAN</u>							
Salmon Meadows	19A2M	4500	48	5.4	-	-	-
Trout Creek	3-M	3600	48	7.3	Late	4.4	5.4
<u>YAKIMA</u>							
Domery Flat	21B20m	2200	48	6.9	-	-	-
Lake Cle Elum	21B14M	2200	48	12.8	-	-	-
<u>WALLA WALLA</u>							
Couse	17C3m	3650	48	11.1	-	10.1	9.1
Helmers	17C2M	4400	48	12.0	-	-	9.4
<u>WENATCHEE</u>							
Upper Wheeler	20B7M	4400	48	12.7	13.5	11.4	12.6

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile Depth	Inches Total Capacity	Soil Moisture Content (Inches) as of Oct. 1		
					1979	1978	1977
<u>OKANOGAN</u>							
Salmon Meadows	19A02M	4500	48	5.4	-	-	-
Trout Creek	3-M	3600	48	7.3	3.1	3.7	3.2
<u>YAKIMA</u>							
Domery Flat	21B20m	2200	48	6.9	-	-	-
Lake Cle Elum	21B14M	2200	48	12.8	-	-	-
<u>WALLA WALLA</u>							
Couse	17C3m	3650	48	11.1	6.7	5.9	-
Helmers	17C2M	4400	48	12.0	8.1	8.2	-
<u>WENATCHEE</u>							
Upper Wheeler	20B7M	4400	48	12.7	5.1	10.3	6.6

PRECIPITATION 1/

Division Average Observations and Departures

Drainage Divisions	FALL		WINTER		SPRING	
	Sept-Oct Observed	1979 <u>2/</u> Departure	Nov.-1979--Mar.-1980 Observed	Departure	April 1980 Observed	Departure
Columbia in Canada	4.44	-0.58	13.78	-1.73	1.48	-0.23
Pend Oreille - Spokane	3.23	-0.81	13.28	-4.27	1.99	+0.17
Northeastern Washington	2.53	+0.05	9.70	+0.30	2.20	+0.94
Southeastern Washington	2.53	+0.02	10.79	+0.36	0.88	-0.65
Central Washington	1.55	+0.58	6.84	+1.56	0.72	+0.07
North Central Washington	2.22	+0.63	6.05	-0.49	1.04	+0.19
Northwest Slope Cascades	10.68	-2.53	51.07	-4.32	4.87	-1.77
Southwest Slope Cascades	9.66	+0.98	35.13	-6.51	4.42	-0.20

Northeastern Washington - Lower Spokane, Colville, Sanpoil and Lower Kettle Drainages.

Southeastern Washington - Touchet, Tucannon and Palouse Drainages.

Central Washington - Yakima, Wenatchee and Chelan Drainages.

North Central Washington - Methow and Okanogan Drainages.

Northwest Slope Cascades - Puget Sound Drainages.

Southwest Slope Cascades - Lower Columbia Drainages.

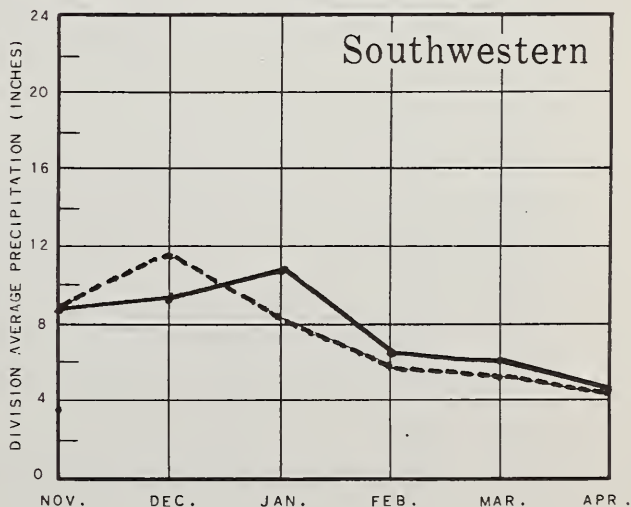
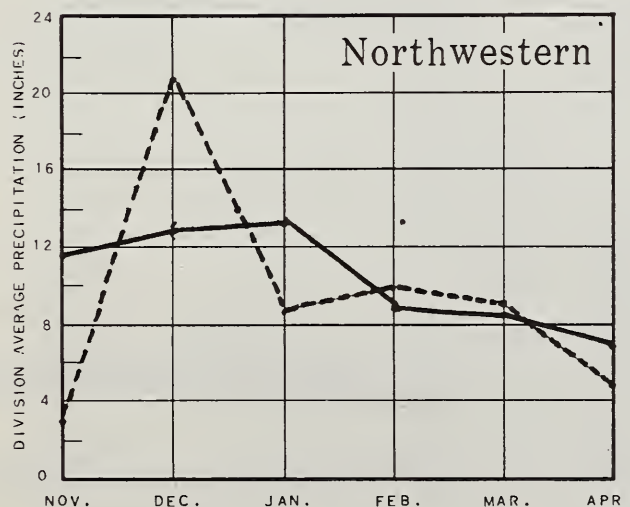
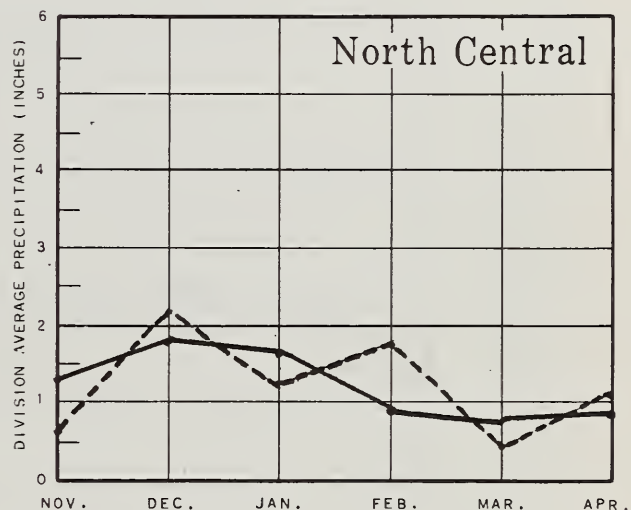
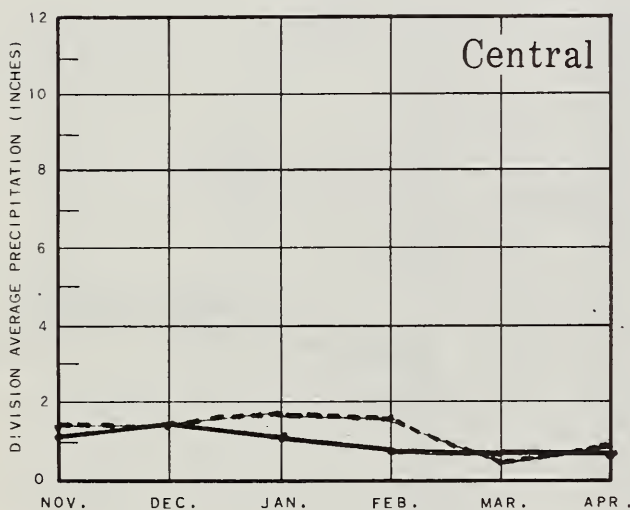
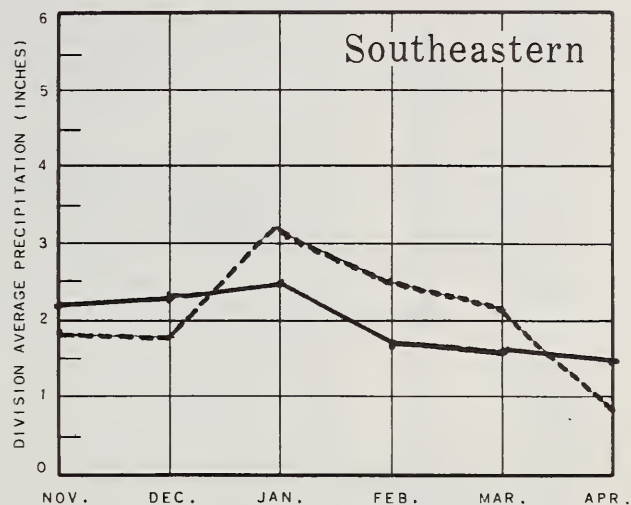
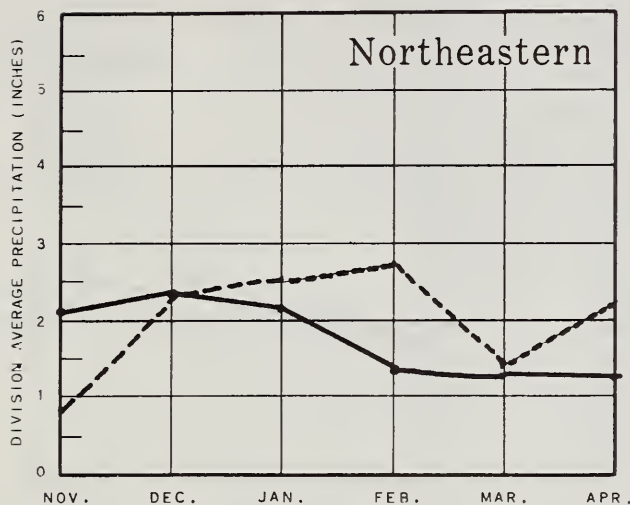
1/ - Preliminary analysis by National Weather Service from data furnished by Meteorological Services of Canada and the National Weather Service.

2/ - Departure from 15-year (1958-72) drainage division average.

WASHINGTON VALLEY PRECIPITATION

1980

DRAINAGE AREAS



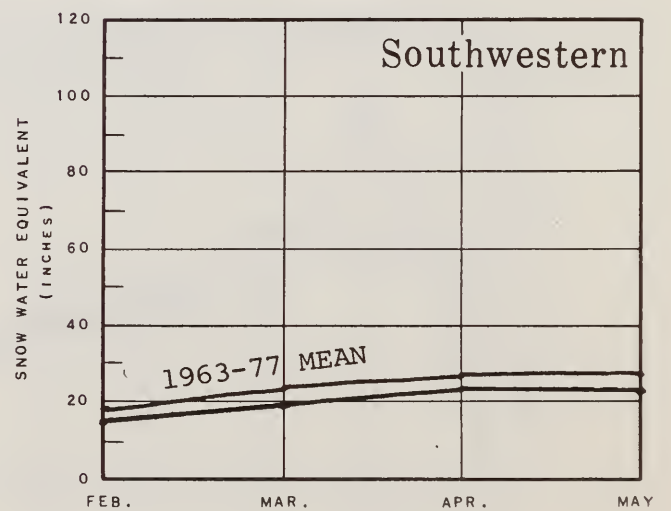
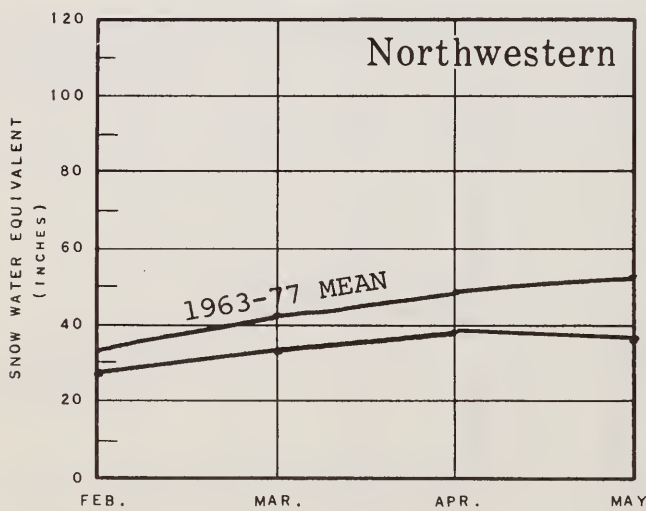
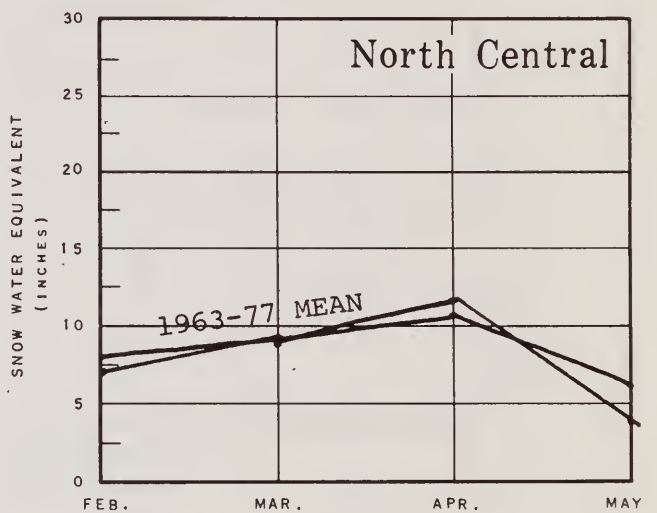
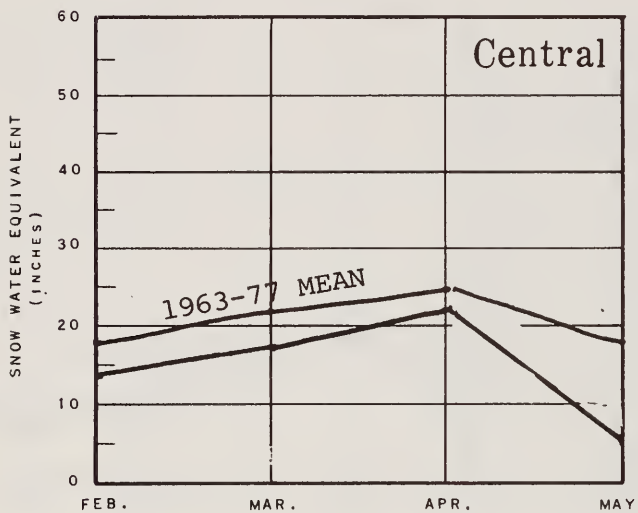
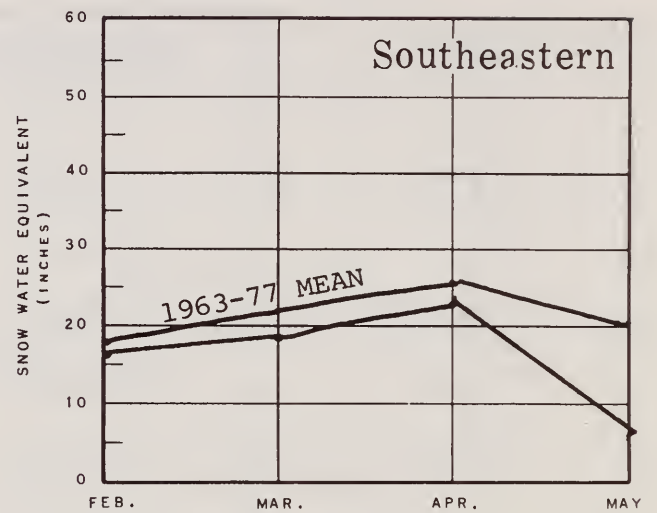
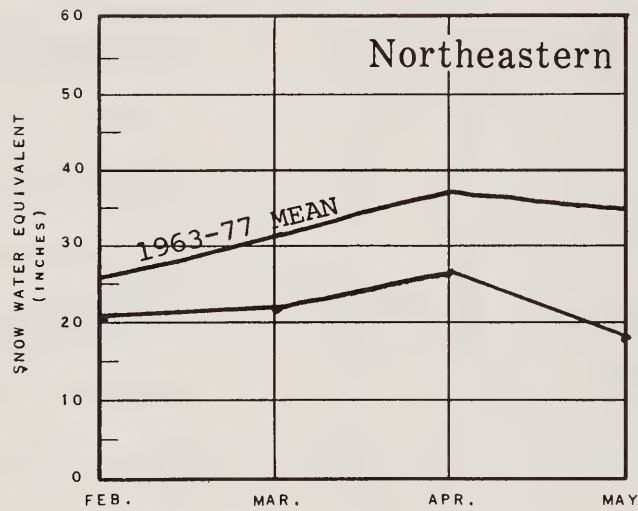
Average: —
1980 : - - -

Preliminary Analysis by National Weather Service

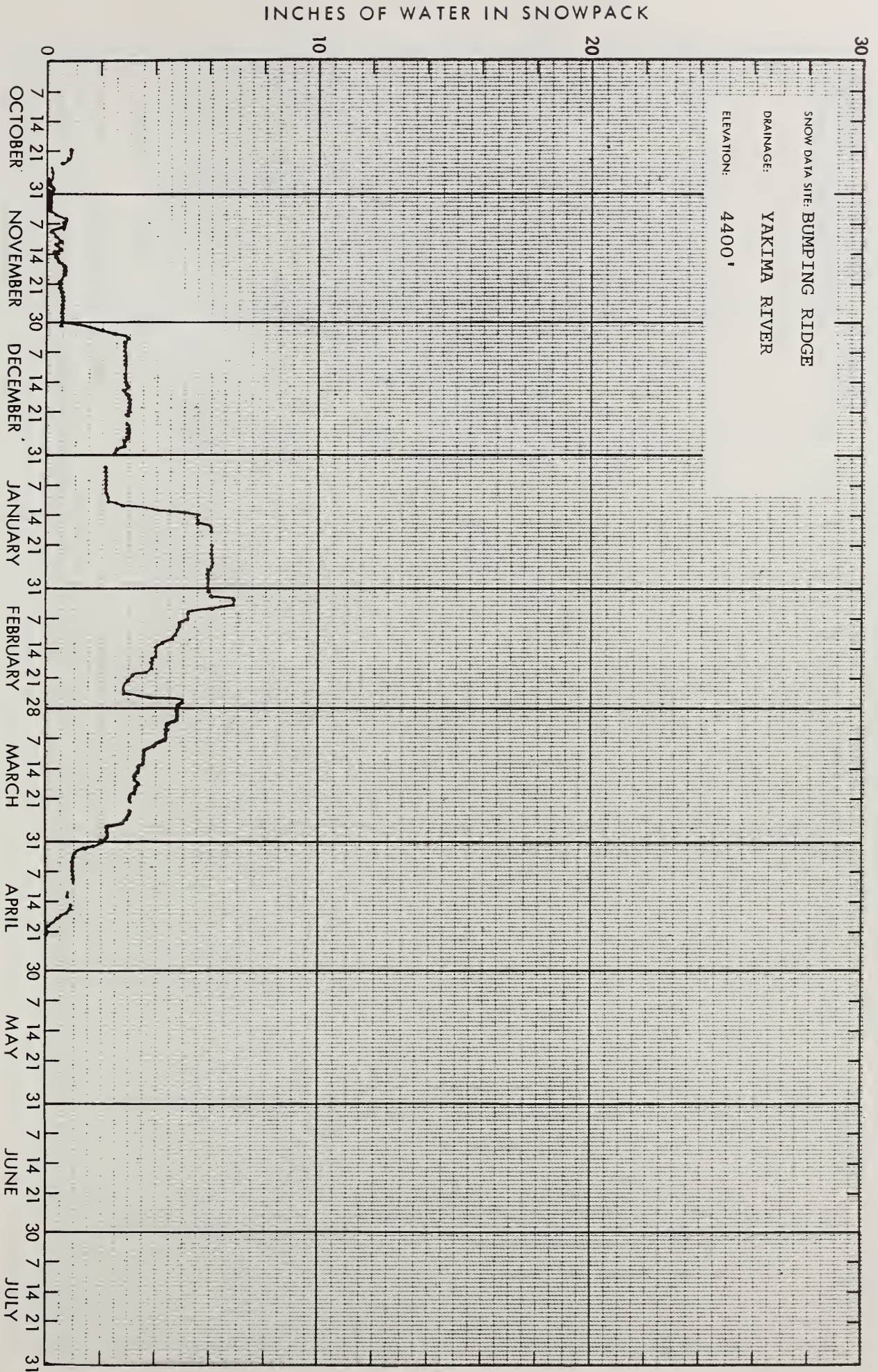
WASHINGTON SNOW COVER

1980

DRAINAGE AREAS

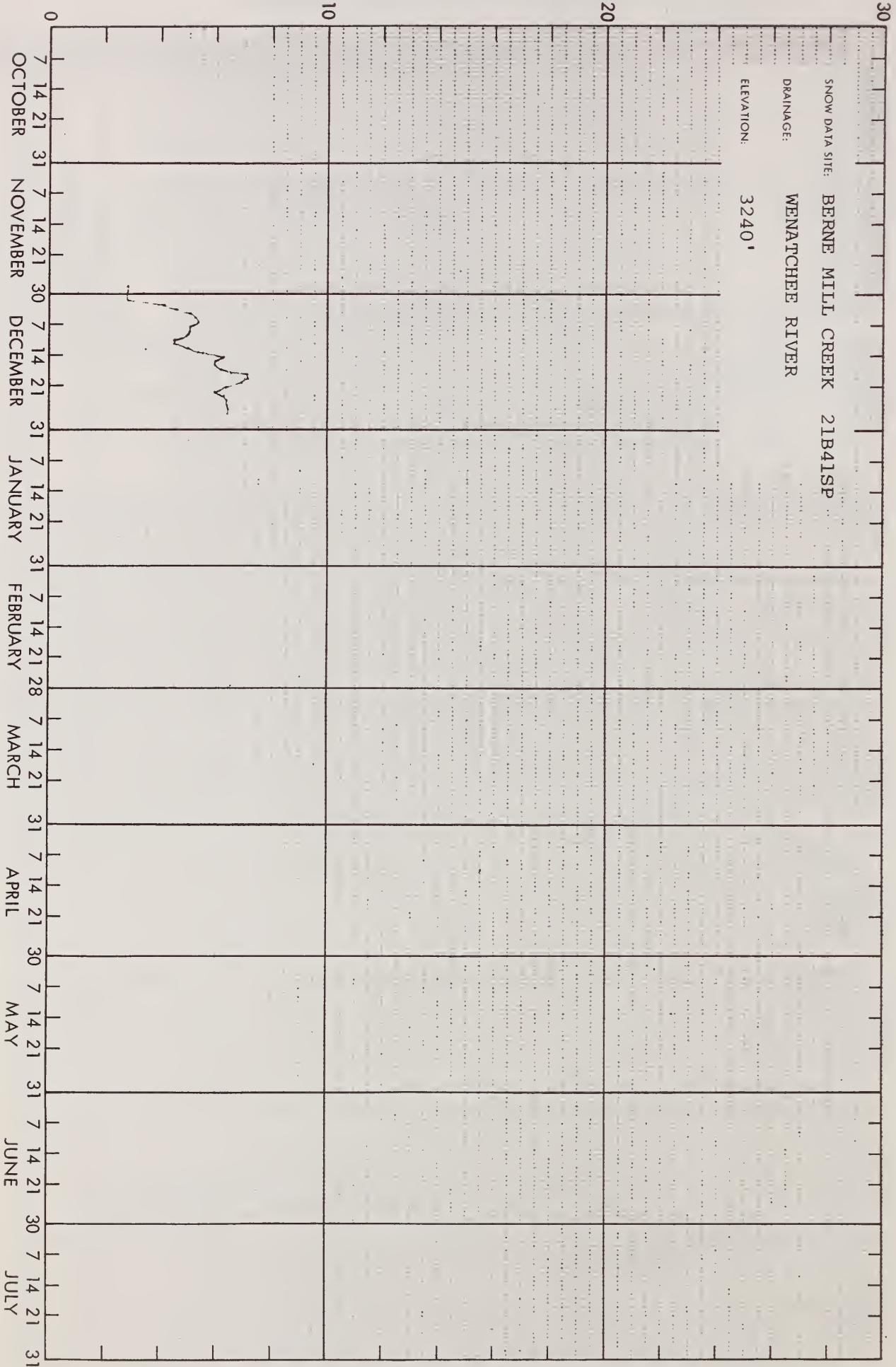


Selected Snow Survey Courses by Soil Conservation Service

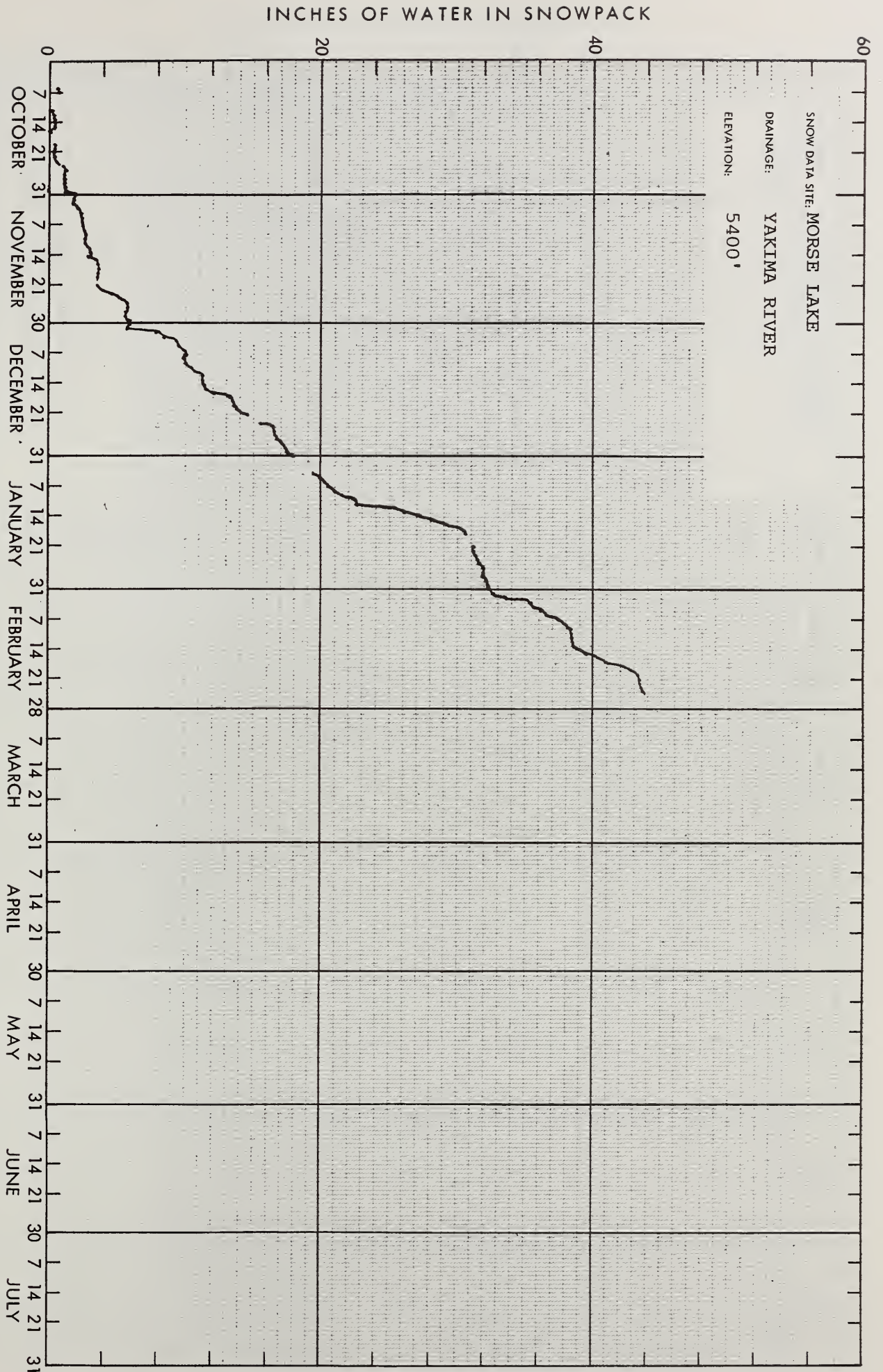


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INCHES OF WATER IN SNOWPACK

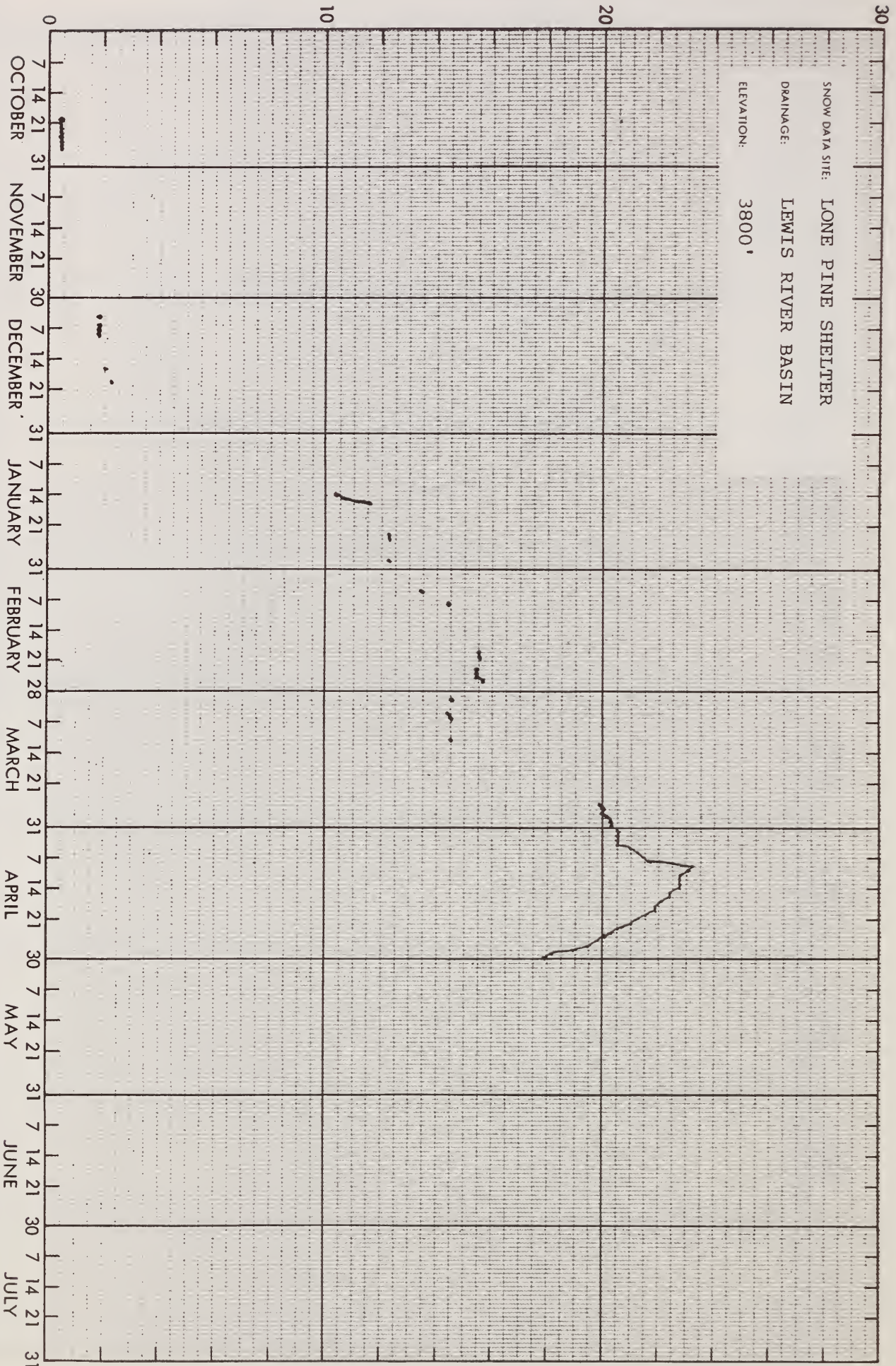


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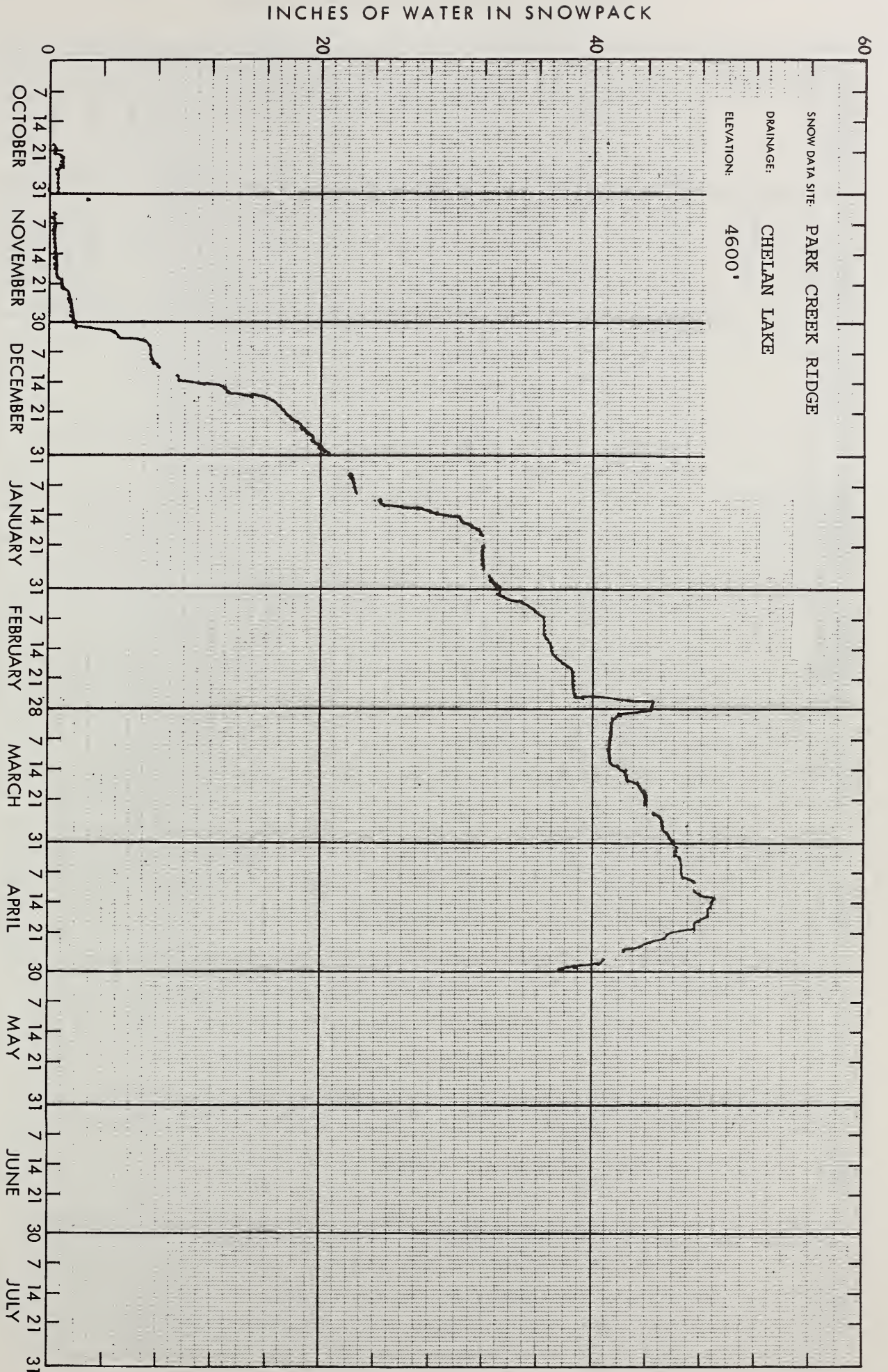


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INCHES OF WATER IN SNOWPACK

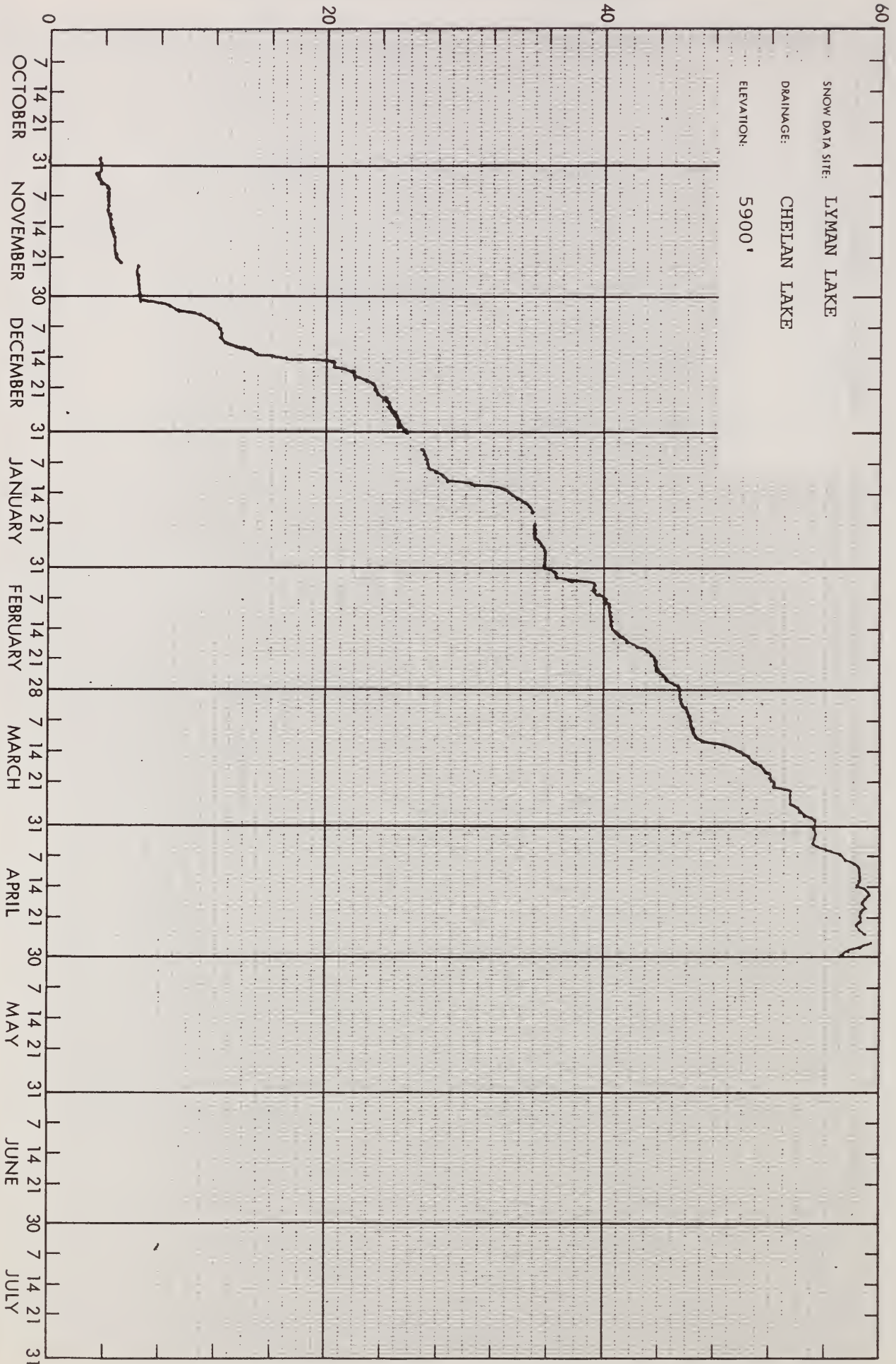


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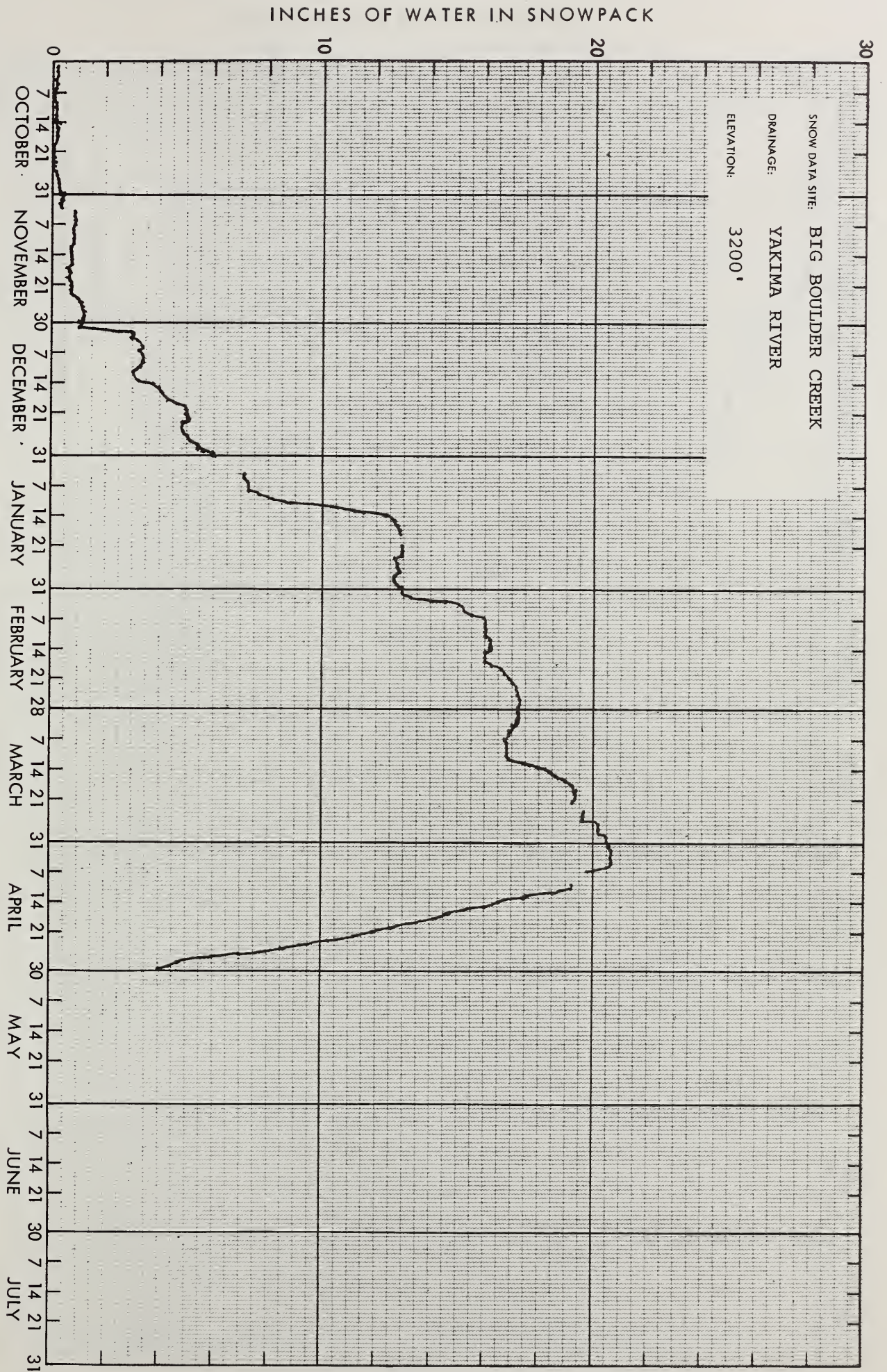


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INCHES OF WATER IN SNOWPACK

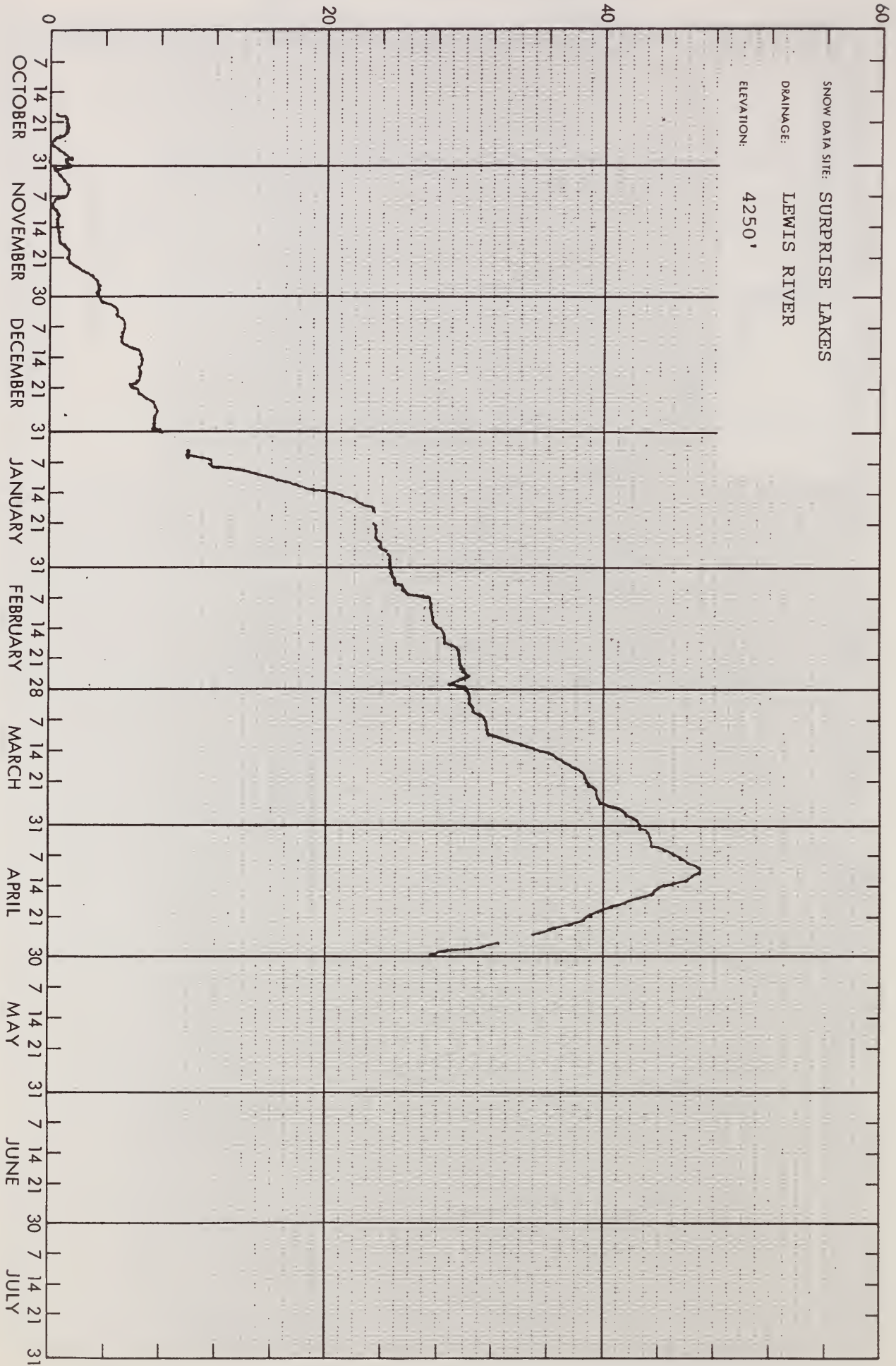


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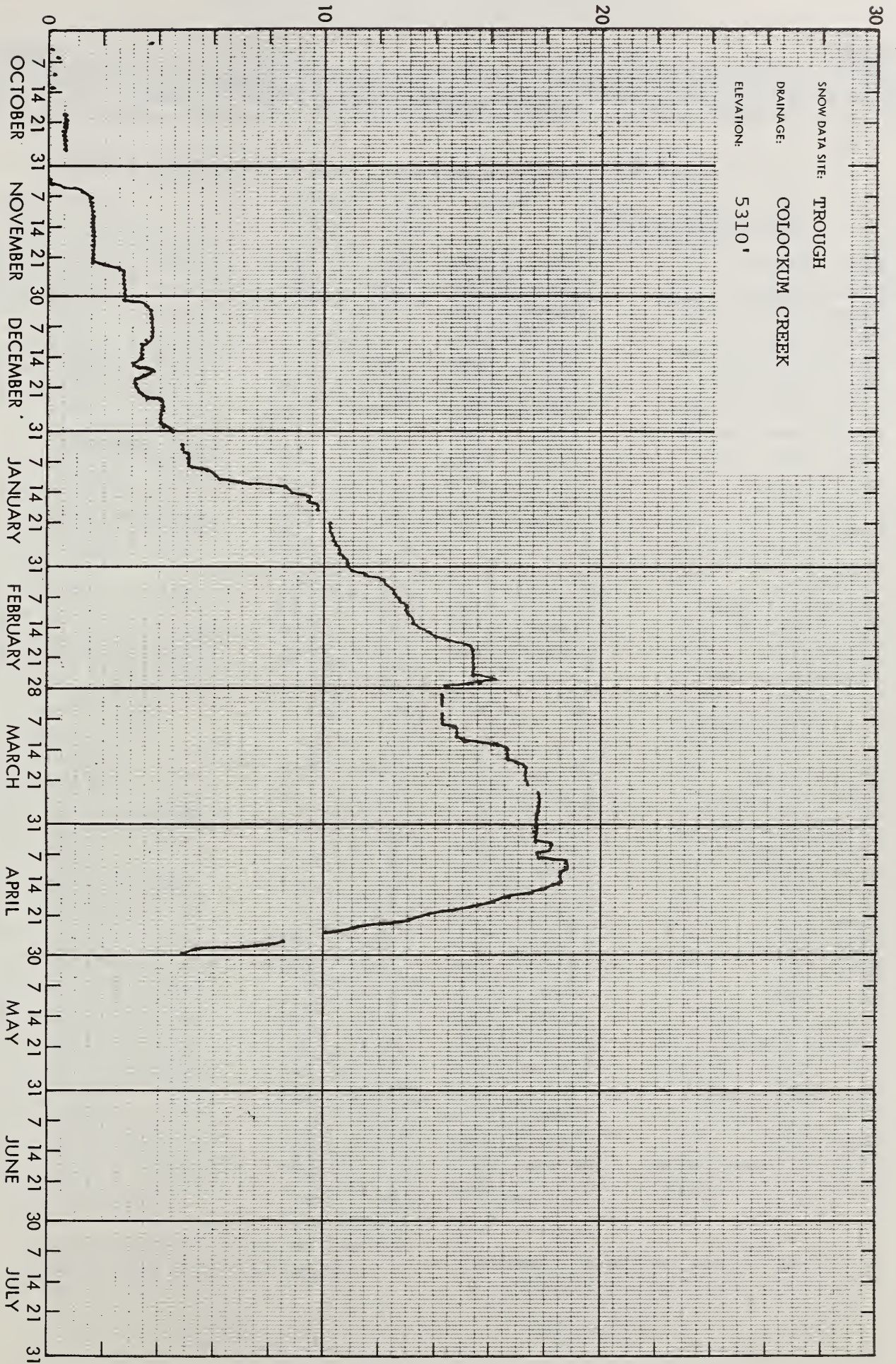
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INCHES OF WATER IN SNOWPACK



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INCHES OF WATER IN SNOWPACK



SNOW DATA TO MAY 1, 1980 - APPENDIX 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average $\frac{+}{-}$

U P P E R C O L U M B I A D R A I N A G EPEND OREILLE RIVER

Baree Creek	15B11	5500	5/1	55	27.3	42.0	49.5
Baree Midway	15B16	4600	5/1	43	18.7	32.0	35.1
Baree Trail	15B15	3800	5/1	0	0.0	0.0	1.8
Benton Meadow	16A02	2344	4/29	0	0.0	0.0	0.0
Benton Spring	16A03	4900	4/29	9	4.0	16.7	16.7
Boyer Mountain	17A02	5250	4/28	38	17.2	21.4	25.2
Brush Creek Timber	14A13	5000	4/28	0	0.0	10.4	8.1
Bunchgrass Meadow	17A01	5000	5/1	38	18.5	22.7	30.0
Heart Lake Trail	14C10	4800	4/27	28	11.4	21.3	19.1
Hoodoo Basin	15C10	6000	4/27	89	44.0	49.6	55.6
Hoodoo Creek	15C01	5900	4/27	81	39.8	49.3	52.0
Lookout	15B02	5250	4/14	76	29.2	35.3	38.6
			4/30	40	17.4	28.2	35.4
Nelson	19-Can	3050	4/30	4	2.0	8.1	7.2*
Schweitzer Bowl	16A06	4500	5/1	23	10.7	21.3	26.8
Schweitzer Ridge	16A05	6100	5/1	80	42.8	37.1	47.5
Smith Creek	16A01	4800	4/29	71	32.5	31.4	47.4
Winchester Creek	17A03	2970	4/28	0	0.0	1.0	1.9

KETTLE RIVER

Barnes Creek	90-Can	5300	4/29	23	8.3	18.5	21.1*
Big White Mtn.	154-Can	5500	4/30	30	12.0	17.2	21.3*
Bluejoint Mtn.	244-Can	7500	4/29	48	20.7	22.6	30.3*
Boulder Road	18A02	1450	4/28	0	0.0	0.0	0.0
Butte Creek	18A03	4070	4/28	10	3.0	4.0	6.0
Cabin Creek	18A08	3170	4/28	0	0.0	0.0	1.8
Carmi	126-Can	4100	4/30	0	0.0	0.0	1.9*
Farron # 1	17-Can	4000	4/29	13	5.7	5.2	8.4*
Farron # 2	243-Can	4000	4/29	16	6.1	6.9	9.3*
Goat Creek	18A04	3595	4/28	0	0.0	0.0	0.0
Graystoke Lake	5-Can	5950	4/29	22	7.8	15.6	21.8*
Monashee Pass	48A-Can	4500	4/29	8.7	2.2	11.7	13.2*
Old Glory Mountain	42-Can	7000	4/26	64	26.8	20.4	29.5*
Snow Caps Creek	18A05	2150	4/28	0	0.0	0.0	0.0
Snow Caps Trail	18A06	2720	4/28	0	0.0	0.0	0.0
Summit G.S.	18A07	4600	4/28	1.5	0.6	2.1	6.3
Trapping Creek Lower	166-Can	3050		Not Measured		-	0.0*
Trapping Creek Upper	165-Can	4450	4/30	0	0.0	4.6	6.2*

Average based on 1963-77 average

* Average for years of record

SNOW DATA TO MAY 1, 1980 - APPENDIX 2

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

SPOKANE RIVER

Above Burke	15B08	6100	4/30	15	6.3	18.5	19.7
Copper Ridge	16B02	4800		Not Measured		23.5	25.7
Forty-nine Meadows	15B03	4840	5/1	19	7.2	22.6	26.9
Granite Peak	15B13A	6000	5/1	72	28.5	38.1	47.6
Lookout	15B02	5250	4/14	76	29.2	35.3	38.6
			4/30	40	17.4	28.2	35.4
Lost Lake	15B14A	6000	5/1	85	34.7	47.4	62.5
Lower Sands Creek	16B01	3400	4/28	18	6.4	18.3	18.3
Sherwin	16C01	3200	4/25	0	0.0	7.0	7.2

OKANOGAN RIVER

Aberdeen Lake	6A-Can	4300	5/1	0	0.0	0.4	1.7*
Blackwall Mountain	100-Can	6250	4/29	59	25.0	22.8	37.2*
Bouleau Lake	234-Can	4580	4/27	20	6.5	10.7	12.2*
Brenda Mine	193-Can	4800	4/28	10	3.1	8.5	10.4*
Brookmere	27-Can	3200	4/29	8	2.7	2.8	5.7*
Enderby	130-Can	6250	4/29	65	31.9	30.0	42.7*
Esperon Creek Lower	164-Can	4400	4/27	8	2.4	5.3	9.9*
Esperon Creek Middle	163-Can	4700	4/27	12	4.3	9.1	13.2*
Esperon Creek Upper	162-Can	5400	4/27	22	8.8	12.7	19.4*
Graystoke Lake	5-Can	5950	4/29	22	7.8	15.6	21.8*
Hamilton Hill	107-Can	4900	4/28	24	9.1	10.1	13.1*
Harts Pass	20A05A	6500	4/29	84	36.2	33.1	51.5
Isintok Lake	152-Can	5510	4/27	8	2.4	3.7	7.3*
Lost Horse Mountain	105-Can	6300	5/1	15	5.0	8.1	10.7*
Loup Loup	19A07	4650	4/29	1.7	0.6	0.0	6.1
McCulloch	4-Can	4200	4/28	0	0.0	0.7	2.8*
Missezula Mountain	106-Can	5100	4/27	16	5.9	6.1	5.9*
Mission Creek	5A-Can	6000	4/29	31	11.9	17.2	21.9*
Monashee Pass	48A-Can	4500	4/29	8.7	2.2	11.7	13.2*
Mount Kobau	156-Can	5950	4/30	23	8.2	5.0	13.5*
Mutton Creek No. 1	19A01	5700	4/25	19	6.1	0.4	11.3
Mutton Creek No. 2 SP	19A11SP	6000	4/25		6.6	2.8	13.9
New Copper Mountain	46A-Can	4300	4/29	0	0.0	0.0	1.2*
New Penticton Res. #2	183-Can	5225	5/1	6	1.9	4.8	8.7*
Nickel Plate Mtn.	47-Can	6200	4/30	12	4.2	6.5	8.1*
Oyama Lake	203-Can	4400	4/30	0	0.0	2.0	3.6*
Postill Lake	55-Can	4500	4/28	1.6	0.5	4.5	6.8*
Quartette Lake	34-Can	4000	4/29	19	7.9	9.0	10.8*
Rusty Creek	19A03	4000	4/25	0	0.0	0.0	0.8
Salmon Meadows	19A02	4500	4/25	12	4.0	0.0	6.2

Average based on 1963-77 average

* Average for years of record

SNOW DATA TO MAY 1, 1980 - APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

OKANOGAN RIVER (Cont.)

Silver Star Mountain	99-Can	6050	4/27	47	20.2	21.0	28.2*
Summerland Reservoir	3A-Can	4200	4/27	8.7	2.8	6.8	6.9*
Trout Creek	3-Can	4700	4/30	0	0.0	3.8	5.3*
Vaseux Creek	233-Can	4600	4/27	0	0.0	0.3	2.6*
White Rocks Mountain	70-Can	6000	4/30	24	9.6	19.4	26.7*

METHOW RIVER

Harts Pass	20A05A	6500	4/29	84	36.2	33.1	51.5
Mutton Creek No. 1	19A01	5700	4/25	19	6.1	0.4	11.3
Mutton Creek No. 2 SP	19A11	6000	4/25		6.6	2.8	13.9
Rusty Creek	19A03	4000	4/25	0	0.0	0.0	0.8
Salmon Meadows	19A02	4500	4/25	12	4.0	0.0	6.2

CHELAN LAKE BASIN

Lyman Lake	20A23A	5900			Late Report		82.0
Park Creek Ridge	20A12A	4600			Late Report		31.7
Rainy Pass	20A09	4780	4/29	65	27.6	29.4	47.5

ENTIAT RIVER

Blue Creek G.S.	20B28a	5425	5/1	58	25.5	21.0	39.9
Brief	20B19	1600	4/26	0	0.0	0.0	0.0
Entiat Meadows +	20A33a	4540	5/1	74	32.5	-	35.7
Entiat River Trail +	20A34a	3325			Not Measured	0.0	3.0
Four Mile Ridge +	20B27a	6800	5/1	60	26.4	20.2	38.5
Fox Camp +	20A36a	6510	5/1	134	58.9	38.6	64.1
Pope Ridge	20B20	3540	5/1	18	7.6	5.7	9.8
Pugh Ridge +	20A32a	6725	5/1	61	26.8	23.5	30.8
Shady Pass	20A37	6200	5/1	52	23.0	16.7	31.6
Snow Brushy +	20A35a	3910	5/1	21	8.8	26.2	29.4
Tommy Creek +	20B21a	4900	5/1	16	7.0	9.2	21.7

WENATCHEE RIVER

Berne-Mill Creek	21B23	2925	4/29	30	14.2	23.1	23.9
Berne-Mill Creek New SP	21B41	3240	4/29	20	9.9	15.4	19.8
Blewett Pass No. 2	20B02	4270	4/15	27	11.2	12.1	15.3
			4/25	8.8	4.6	9.4	10.8
Chiwaukum G.S.	20B16	1810	4/29	0	0.0	0.3	1.5
Fish Lake	21B04	3371	4/30	33	15.6	21.2	28.0
Lake Wenatchee	20B05	1970	4/29	0	0.0	3.7	2.7
Lyman Lake	20A23A	5900			Late Report	-	-

Average based on 1963-77 average

* Average for years of record

+ Snow water equivalent estimated from aerial stadia observation

SNOW DATA TO MAY 1, 1980 - APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average [#]

WENATCHEE RIVER (Cont.)

Merritt	20B18	2140	4/29	0	0.0	6.6	5.5
Stevens Pass	21B01	4070	4/15	103	44.5	46.1	56.3
			4/29	84	39.7	43.0	57.5
Stevens Pass Sand Shed	21B45	3700	4/15	68	29.6	32.4	38.0
			4/29	41	20.4	29.6	37.3

SQUILCHUCK CREEK

Beehive Springs	20B03	4400	4/28	0	0.0	1.3	2.2
Scout-A-Vista	20B04	3400	4/28	0	0.0	0.0	0.3

STEMILT CREEK

Jump-Off	20B08	4450	4/29	0	0.0	3.0	3.3
Stemilt Slide	20B06	5000	4/28	6	2.4	6.3	7.8
Upper Wheeler	20B07	4400	4/28	0	0.0	0.0	1.3

COLOCKUM CREEK

Colockum Creek Upper	20B22	5300	4/29	0	0.0	5.4	10.8
Colockum Creek Lower	20B23	4300	4/29	0	0.0	2.2	2.8
Trough # 2	20B25SP	5310	4/29	16	7.5	7.5	New

YAKIMA RIVER

Ahtanum R.S.	21C11	3100	4/22	0	0.0	-	-
Big Boulder Creek	21B09	3200	4/30	0	0.0	5.6	10.9
Blewett Pass No. 2	20B02	4270	4/15	27	11.2	12.1	15.3
			4/25	8.8	4.6	9.4	10.8
Bumping Lake	21C08	3450	4/11	43	18.0	10.4	13.8
			4/29	15	6.7	3.1	10.2
Bumping Lake New	21C36	3400	4/11	48	20.0	13.8	19.6
			4/29	22	10.5	6.8	15.2
Cayuse Pass	21C06	5300	5/1	146	65.0	-	98.1
Corral Pass	21B13	6000	4/30	63	28.0	36.8	42.6
Fish Lake	21B04	3371	4/30	33	15.6	21.2	28.0
Joe Lake +	21B46a	4624	4/30	117	56.2	70.4	67.0
Lake Cle Elum	21B14M	2200		Not Measured		0.0	0.0
Lemah Creek +	21B47a	3327	4/30	45	21.6	35.9	40.3
Morse Lake	21C17	5400	4/29	108	48.5	48.9	61.9
Olallie Meadows	21B02	3625	4/15	76	35.2	-	55.1
			4/28	54	26.6	44.0	53.4
Stampede Pass SP	21B10	3860	4/13	85	42.4	46.4	42.9
			5/1	52	27.8	39.7	43.4

Average based on 1963-77 average

+ Snow water equivalent estimated from aerial stadia observation

SNOW DATA TO MAY 1, 1980 - APPENDIX 5

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average [#]

YAKIMA RIVER (Cont.)

Tunnel Avenue	21B08	2450	4/14	38	16.6	17.6	23.9
			5/1	11	5.4	11.8	17.5
Van Epps Pass +	20B26a	5925	4/30	101	48.5	43.7	56.1
Waptus Lake +	21B49a	3024	4/30	45	21.6	27.6	38.9
White Pass (E. Side)	21C28	4500	4/10	71	25.6	22.5	26.9
			4/28	49	21.6	22.3	27.6

L O W E R C O L U M B I A D R A I N A G EASOTIN CREEK

Spruce Springs	17C04	5700	4/28	30	14.7	26.7	24.8
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MILL CREEK

Tollgate	18D3M	5070	4/30	12	5.7	30.4	20.1
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KLICKITAT RIVER

Satus Pass	20D01	4030			Not Measured	-	3.9
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LEWIS RIVER

Lone Pine Shelter	21C26	3800	4/10	93	36.5	-	45.6
			4/30	57	24.2	-	48.0
Marble Mountain	22C05	3200	4/10	Not Measured			38.9
			4/30	0	0.0	-	33.6
Plains of Abraham	22C01	4400	4/10	148	73.0	-	57.2
			4/30	72	41.0	-	77.4
Spencer Meadow	21C20	3400	4/10	30	12.5	-	27.1
			4/30	0	0.0	-	19.0
Surprise Lakes	21C13	4250	4/10	109	41.0	-	53.7
			4/30	46	22.5	-	53.4
Table Mountain	21C24	4200	4/10	108	43.0	-	50.7
			4/30	49	23.5	-	49.2

COWLITZ RIVER

Cayuse Pass	21C06	5300	5/1	146	65.0	-	98.1
White Pass (E. Side)	21C28	4500	4/10	71	25.6	22.5	26.9
			4/28	49	21.5	22.3	27.6

Average based on 1963-77 average

+ Snow water equivalent estimated from aerial stadia observation

SNOW DATA TO MAY 1, 1980 - APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average †

P U G E T S O U N D D R A I N A G EWHITE RIVER

Cayuse Pass	21C06	5300	5/1	146	65.0	-	98.1
Corral Pass	21B13	6000	4/30	63	28.0	36.8	42.6
Morse Lake	21C17	5400	4/29	108	48.5	58.9	61.9

GREEN RIVER

Cougar Mountain SP	21B42SP	3200	4/30	0	0.0	14.2	20.7
Grass Mtn. No. 2	21B27	2900	4/30	4	2.1	-	-
Lester Creek	21B29	3100	4/30	35	14.5	-	-
Lynn Lake	21B50	4000	4/30	7.7	3.2	-	-
Sawmill Ridge	21B31	4700	4/30	52	22.6	-	-
Snowshoe Butte SP	21B43SP	5000	4/30	91	42.9	58.2	67.7
Stampede Pass SP	21B10	3860	4/14	85	42.4	46.4	42.9
			5/1	52	27.8	39.7	43.4
Twin Camp	21B30	4100	4/30	27	13.5	-	-

SNOQUALMIE RIVER

Olallie Meadows	21B02	3625	4/15	76	35.2	-	55.1
			4/28	54	26.6	44.0	53.4

SKYKOMISH RIVER

Stevens Pass	21B01	4070	4/15	103	44.5	46.1	56.3
			4/29	84	39.7	43.0	57.5
Stevens Pass Sand Shed	21B45	3700	4/15	68	29.6	32.4	38.0
			4/29	41	20.4	29.6	37.3

SKAGIT RIVER

Beaver Creek Trail	21A04	2200	4/28	0	0.0	1.1	7.3
Beaver Pass	21A01	3680	4/28	46	19.2	21.4	34.5
Brown Top Ridge +	21A28a	6000	4/28	112	50.2	43.4	74.7
Devils Park	20A04	5900	4/29	81	34.6	33.8	50.4
Freezeout Creek Trail	20A01	3500	4/28	4.6	1.7	6.3	10.2
Freezeout Meadows New	20A38	5000	4/28	48	19.2	37.2	40.3
Granite Creek	21A29A	3500	4/29	9.2	2.9	9.6	18.2
Harts Pass	20A05A	6500	4/29	84	36.2	33.1	51.5
Klesilkwa	35B-Can	3700	4/30	0	0.0	6.4	8.2*
Lyman Lake	20A23A	5900		Late Report		-	82.0
Meadow Cabins	20A08	1900	4/29	0	0.0	2.5	1.9

Average based on 1963-77 average

* Average for years of record

+ Snow water equivalent estimated from aerial stadia observation

SNOW DATA TO MAY 1, 1980 - APPENDIX 7

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

SKAGIT RIVER (Cont.)

New Hozomeen Lake	21A30	2800	4/28	0	0.0	4.2	10.5
New Tashme	26A-Can	2500	4/30	0	0.0	0.0	3.5*
Quartette Lakes	34-Can	4000	4/29	19	7.9	9.1	10.8*
Rainy Pass	20A09	4780	4/29	65	27.6	29.4	45.7
Thunder Basin	20A07	4200	4/29	27	10.0	19.6	26.2

BAKER RIVER

Dock Butte	21A11A	3800	5/1	108	52.0	53.0	79.3
Easy Pass	21A07A	5200	5/1	132	63.0	54.0	97.6
Jasper Pass	21A06A	5400	5/1	148	71.0	64.0	99.8
Marten Lake	21A09A	3600	5/1	110	53.0	62.0	87.0
Mount Blum +	21A18a	5800	4/30	119	57.0	50.0	76.1
Panorama New	21A26	4300	5/2	98	51.0	58.0	88.3
Rocky Creek	21A12A	2100	5/1	0	0.0	12.0	28.4
Schreibers Meadow	21A10A	3400	5/1	62	30.0	38.0	70.5
S. F. Thunder Creek	21A14A	2200	5/1	0	0.0	0.0	2.0
Watson Lakes	21A08A	4500	5/1	94	45.0	61.0	77.7

NOOKSACK RIVER

Glacier Creek	21A23	3700	4/30	Trace	0.0	21.6	27.1
Panorama New	21A26	4300	5/2	98	51.0	58.0	88.3

O L Y M P I C P E N I N S U L ADUNGENESS RIVER

Deer Park	23B04	5200	4/28	33	14.3	21.9	24.2
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MORSE CREEK

Cox Valley	23B14	4500	4/26	63	27.9	35.5	45.3
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ELWHA RIVER

Hurricane	23B03	4500	4/25	28	10.1	16.1	28.2
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Average based on 1963-77 average

* Average for years of record

+ Snow water equivalent estimated from aerial stadia observation

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WATER SUPPLY OUTLOOK FOR WASHINGTON

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